KENDRIYA VIDYALAYA SANGATHAN

Raipur Region

STUDENT SUPPORT MATERIAL

session 2020-21

तत् त्वं पूषन् अपावृणु

केन्द्रीय विद्यालय संगठन

Class XII

COMPUTER SCIENCE

KENDRIYA VIDYALAYA SANGTHAN

REGIONAL OFFICE, RAIPUR

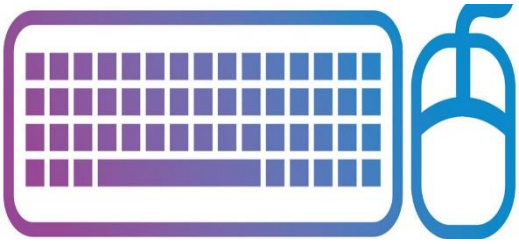
An Autonomous Body Under the Ministry of Education, Government of India

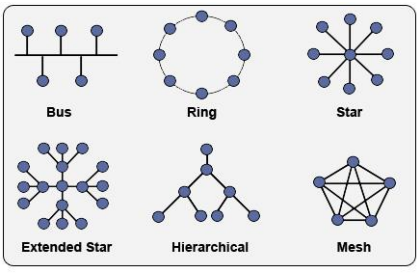
STUDENT SUPPORT MATERIAL

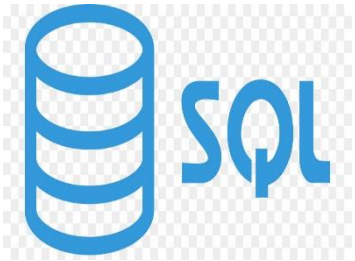
COMPUTER SCIENCE

SESSION 2020-21

CLASS-XII







STUDENT SUPPORT MATERIAL

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REVISED COMPUTER SCIENCE SYLLABUS WITH DELETED PORTION

Revised Computer Science Syllabus
Class XII
Code No. 83
2020-21

1. Prerequisites

Computer Science- Class XI

2. Learning Outcomes

- Apply the concept of functions. Ability to use Python libraries. Apply the concept of file handling.
- Ability to use basic data structures: Stacks. Explain the basics of computer networks.
- Ability to use connectivity between Python and SQL.

3. Distribution of Marks:

Unit No.	Unit Name	Theory Marks	Periods	
			Theory	Practical
I	Computational Thinking and Programming – 2	40	50	30
II	Computer Networks	10	10	---
III	Database Management	20	20	10
	Total	70	80	40

Unit I: Computational Thinking and Programming - 2

- Revision of the basics of Python covered in Class XI.
- Functions: scope, parameter passing, mutable/immutable properties of data objects, passing strings, lists, tuples, dictionaries to functions, default parameters, positional parameters, return values, functions using libraries: mathematical and string functions.
- File handling: Need for a data file, Types of file: Text files, Binary files and CSV (Comma separated values) files.
- Text File: Basic operations on a text file: Open (filename – absolute or relative path, mode), Close a text file, Reading and Manipulation of data from a text file, Appending data into a text file, standard input / output and error streams, relative and absolute paths.
- Binary File: Basic operations on a binary file: Open (filename – absolute or relative path, mode), Close a binary file, Pickle Module – methods load and dump; Read, Write/Create, Search, Append and Update operations in a binary file.
- CSV File: Import csv module, functions – Open, Close a csv file, Read from a csv file and Write into a csv file using csv.reader ( ) and csv.writerow( ).
- Using Python libraries: Import Python libraries.
- Data-structures: Lists as covered in Class XI, Stacks – Push, Pop using a list.

Unit II: Computer Networks

- Evolution of Networking: ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching).
- Data Communication terminologies: Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps).
- Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.
- Network devices: Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card.
- Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN.
- Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, HTTP, SMTP, POP3, Remote Login (Telnet) and Internet, Wireless / Mobile Communication protocol such as GSM, GPRS and WLL.
- Mobile Telecommunication Technologies: 1G, 2G, 3G, 4G and 5G; Mobile processors;
  Electronic mail protocols such as SMTP, POP3, Protocols for Chat and Video Conferencing: VoIP, Wireless technologies such as Wi-Fi and WiMax

Network Security Concepts:

Threats and prevention from Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https;
India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking.

- Introduction To Web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Website, Web browser, Web Servers; Web Hosting.

Unit III: Database Management

Database Concepts: Introduction to database concepts and its need.

Relational data model: Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key;

Structured Query Language:

General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;

Data Types: number / decimal, character / varchar / varchar2, date; SQL commands

covered in class XI (2019-20)

SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL / IS NULL, ORDER BY,GROUP BY, HAVING;

SQL functions: SUM ( ), AVG ( ), COUNT ( ), MAX ( ) and MIN ( );

Joins: equi-join and natural join

Interface of Python with an SQL database

- Connecting SQL with Python
- Creating Database connectivity Applications
- Performing Insert, Update, Delete queries
- Display data by using fetchone(),fetchall(),rowcount

4. Practical

S. No.	Area	Marks (Total=30)
1	**Lab Test:** 1. Python program (60% logic + 20% documentation + 20% code quality) 2. Small Python program that sends a SQL query to a database and displays the result. A stub program can be provided.	**7** **5**
2	**Report file:** Minimum 20 Python programs. Out of this at least 4 programs should send SQL commands to a database and retrieve the result	**7**
3	**Project** (that uses the concepts that have been learnt in Class 11 and 12)	**8**
4	**Viva voce**	**3**

5. Suggested Practical List:

Python Programming

- Read a text file line by line and display each word separated by a #. Read a text file and display the number of vowels/ consonants/ uppercase/ lowercase characters in the file.
- Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
- Create a binary file with roll number, name and marks. Input a roll number and update the marks.
- Remove all the lines that contain the character `a' in a file and write it to another file.
- Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
- Write a Python program to implement a stack and queue using a list data-structure.
- Take a sample of ten phishing e-mails (or any text file) and find most commonly occurring word(s)

Database Management

- Create a student table and insert data. Implement the following SQL commands on the student table:
  ALTER table to add new attributes / modify data type / drop attribute
  UPDATE table to modify data
  ORDER By to display data in ascending / descending order DELETE to remove tuple(s)
  GROUP BY and find the min, max, sum, count and average
- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing the MySQL module.

6. Project

The aim of the class project is to create something that is tangible and useful using Python / Python and SQL connectivity. This should be done in groups of two to three students and should be started by students at least 6 months before the submission deadline. The aim here is to find a real world problem that is worthwhile to solve.

Students are encouraged to visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. Students can be extremely creative here. They can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their disabled fellow students, and mobile applications, Of course to do some of these projects, some additional learning is required; this should be encouraged. Students should know how to teach themselves.

The students should be sensitized to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.

7. Suggested Practical List:

Python Programming

Read a text file line by line and display each word separated by a #. Read a text file and display the number of vowels/ consonants/ uppercase/ lowercase characters in the file.

- Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
- Create a binary file with roll number, name and marks. Input a roll number and update the marks.
- Remove all the lines that contain the character `a' in a file and write it to another file.
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DEDUCTED PORTION OF COMPUTER SCIENCE - 83
CLASS XII

Unit I: Computational Thinking and Programming - 2

- Recursion – simple algorithms with recursion : print a message forever, sum of first n natural numbers, factorial, Fibonacci numbers, recursion on arrays : binary search
- Idea of efficiency : performance measurement in terms of the number of operations.
- Data-structures: Lists as covered in Class XI, Stacks – Push, Pop using a list,
- Queues – Insert, Delete using a list. (One of the data structure Stack or Queue.
- Note : While setting the question paper a students will have an option between Stack and Queue.)

Unit II: Computer Networks

- Web Scripting Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking)
- E-commerce payment transactions using online banking, mobile banking, payment apps and services.

Unit III: Database Management

CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATE..... SET, INSERT, DELETE

1. Suggested Practical List: Python Programming

- Recursively find the factorial of a natural number
- Write a recursive code to find the sum of all elements of a list.
- Write a recursive code to compute the nth Fibonacci number

REVISION PLAN
AND
SPECIAL REMEDIAL PLAN

KENDRIYA VIDYALAYA SANGATHAN RIGIONAL OFFICE RAIPUR

REMEDIAL /REVISION PLAN FOR HIGH ACHIEVERS

W.E.F. 01/02/2021

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 01

Unit name	Topic	Sub-topic	Marks of Topic	Content	Important questions
Computational thinking and programming-2	**PYTHON FUNDAMENTAL**	**Keywords, Operators and Practice of CBSE sample papers questions based on this topic**	**4M**	**Keywords:-** .Keywords are the words that have special meaning reserved by programming language. – They are reserved for special purpose and cannot be used for normal identifier names. – E.g. in, if, break, class, and, continue, True, False• **Operators:**-Operators are the symbol, which triggers some computation when applied on operand. **– Unary Operator**: those operators that require only one operand. • Unary Plus + • Unary Minus – • Bitwise Complement ~ • Logical Negation not – **Binary Operator**: those operators that require only two operand. • Arithmetic Operator +,-,*,/,% • Bitwise Operator &, ^, | • Shift Operator >> , << • Identity Operator is , is not	**Q1.** What is a python variable? Identify the variables that are invalid and state the reason Class, do, while, 4d, a+ **Ans:** - A variable in python is a container to store data values. a) do, while are invalid because they are python keyword b) 4d is invalid because the name can't be started with a digit. c) a+ is also not valid as no special symbol can be used in name except underscore (_). **Q2.** Which of the following is valid arithmetic operator in Python: (i)// (ii)**?** (iii)< (iv)and **ANS**- (i) **Q3**-. Write the type of tokens from the following: (i) if (ii) roll_no **ANS-** i) Keyword ii)identifier **Q4-.** Which of the following are valid operators in Python: (i) ** (ii) */ (iii) like (iv) || (v) is (vi) ^ (vii) between (viii) in **ANS**- i) iv) vi) viii)

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 02

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**

Computational thinking and programming-2	CONTROL STATEMENTS	Conditional statements,iterative computation and control flow. Practice of CBSE sample papers based questions on this topic	**6M**	Control statements are used to control the flow of execution depending upon the specified condition/logic.
				There are three types of control statements 1. Decision Making Statements (if, elif, else)
				2. Iteration Statements (while and for Loops)
				3. Jump Statements (break, continue, pass)
				
				NOTE-for detail theory please refer concept part
					QUE-1 Find the output
					Msg1="WeLcOME"
					Msg2="GUeSTs"
					Msg3=""
					for I in range(0,len(Msg2)+1):
					if Msg1[I]>="A" and Msg1[I]<="M":
					Msg3=Msg3+Msg1[I]
					elif Msg1[I]>="N" and Msg1[I]<="Z":
					Msg3=Msg3+Msg2[I]
					else:
					Msg3=Msg3+"*"
					print(Msg3)
					ANS:- G*L*TME
					
					NOTE- For more question on this topic please refer Question bank section in study material

DURATION OF REMEDIAL CLASS- 1 HOUR

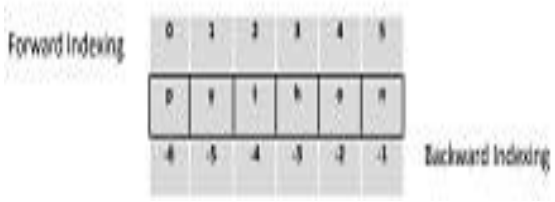
DAY- 03

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**

Computational thinking and programming-2	LIST, TUPLE ,DICTONARY	Creation of a list, tuple &dictonary,Traversal of a list,tuple &dictonary Operations on a list ,tuple and &Dictonary .Practice of CBSE sample papers based questions on this topic	**4M**	**List in Python**:-List is a standard data type of Python that can store a sequence of values belonging to any type.
				• List is mutable (modifiable) sequence i.e. element can be changed in place.
				• Example
				– List=[1,2,3,4,5]
				– List1=['p','r','o','b','l','e','m']
				– List2=['pan','ran','oggi','blade','lemon','egg','mango']
				Tuples in Python:-It is a sequence of immutable objects. It is just like a list. Difference between a tuple and a list is that the tuple cannot be changed like a list. List uses square bracket whereas tuple use parentheses.
				L=[1,2,3,4,5] Mutable Elements of list can be changed
				T=(1,2,3,4,5) Immutable Elements of tuple can not be changed
				Dictionary in Python:- is an unordered collection of data values, used to store data values along with the keys. Dictionary holds key: value pair. Key value is provided in the dictionary to make it more optimized. Each key-value pair in a Dictionary is separated by a colon:, whereas each key is separated by a 'comma'.
				dict={ "a": "alpha", "o": "omega", "g": "gamma" }
					Q1. Find the error in following code. State the reason of the error.
					aLst = { 'a':1 ,' b':2, 'c':3 }
					print (aLst['a','b'])
					Ans: The above code will produce KeyError, the reason being that there is no key same as the list ['a','b'] in dictionary aLst.
					Q2. Find and write the output of the following
					list=['p','r','o','b','l','e','m']
					list[1:3]=[]
					print(list)
					list[2:5]=[]
					print(list)
					ANS:- ['p','b','l','e','m']
					['p','b']
					Q3-Find the output
					t5=("sun",2,"tue",4,"thru",5)
					if "sun" not in t4:
					for i in range (0,3):
					print(t5[i])
					else:
					for i in range (3,6):
					print(t5[i])
					
					ANS- 4
					thru
					5

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 04

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computational thinking and programming-2	STRINGS	Traversal, operations – concatenation, repetition, membership;functions/methods.Practice of CBSE sample papers based questions on this topic	**2M**	**String:-**String are character enclosed in quotes of any type like single quotation marks, single quotation marks and triple quotation marks. – 'Computer' – "Computer" – '''Computer''' • String are immutable • Empty string has 0 characters. • String is sequence of characters, each character having unique position or index 	**Q1** Find output generated by the following code: String Str="Computer" Str[-4:] Str*2 **ANS:-** uter 'ComputerComputer' **Q-2:-** Find output of the following code fragment. x="hello world" print(x[:2],x[:-2],x[-2:]) print(x[6],x[2:4]) print(x[2:-3],x[-4:-2]) Ans: he hello wor ld w ll llo wo or

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 05

Unit name	Topic	Sub-topic	Marks of Topic	Content	Important questions

Computational thinking and programming-2	FUNCTIONS	Functions: scope,functions using libraries: mathematical and string functions.	**3M**	**Definition:** Functions are the subprograms that perform specific task. Functions are the small modules.
				Types of Functions:
				There are three types of functions in python:Built in functions
				Functions defined in modules
				User defined functions
				Scope of a variable:- is the portion of a program where the variable is recognized. Parameters and variables defined inside a function is
				not visible from outside. Hence, they have a local scope.
				There are two types of scope for variables:
				i) Local Scope
				ii) Global Scope
				Local Scope: Variable used inside the function. It cannot be accessed outside the function. In this scope, the lifetime of variables
				inside a function is as long as the function executes. They are destroyed once we return from the function. Hence, a function does not
				remember the value of a variable from its previous calls.
				Global Scope: Variable can be accessed outside the function. In this scope, Lifetime of a variable is the period throughout which the
				variable exits in the memory.
				Example:
				def my_func(): x = 10
					Q1. Rewrite the correct code after removing the errors:
					def SI(p,t=2,r):
					return (p*r*t)/100
					Ans: - **def SI(p, r, t=2):**
					return(p*r*t)/100
					Q2- Find the output
					string=”aabbcc”
					count=3
					while True:
					if string[0]=='a':
					string=string[2:]
					elif string[-1]=='b':
					string=string[:2]
					else:
					count+=1
					break
					print(string)
					print(count)
					ANS- bbcc
					4

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 06

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computational thinking and programming-2	FUNCTIONS	User defined functions, parameter passing ,passing strings, lists, tuples, dictionaries to functions. Practice of CBSE sample papers based questions on this topic	**3M**	**User Defined Functions:** The functions those are defined by the user are called user defined functions. The syntax to define a function is: def function-name (parameters) : Keyword def marks the start of function header. A function name to uniquely identify it. Function naming follows the same rules of writing identifiers in Python. Parameters (arguments) through which we pass values to a function. They are optional. A colon (:) to mark the end of function header. One or more valid python statements that make up the function body. Statements must have same indentation level. An optional return statement to return a value from the function. #statement(s) Example: def display(name): print("Hello " + name + " How are you?")	**Q1**. Find the output of the following L1 = [100,900,300,400,500] START = 1 SUM = 0 for C in range(START,4): SUM = SUM + L1[C] print(C, ":", SUM) SUM = SUM + L1[0]*10 print(SUM) **ANS:- O/P** 1:900 1900 3200 3:3600 4600 **Q-2.**What is the difference between actual and formal parameters ? **ANS:-** Actual parameters are those parameters which are used in function call statement and formal parameters are those parameters which are used in function header (definition). e.g. def sum(a,b): # a and b are formal parameters returna+b x,y=5,10 res=sum(x,y) # x and y are actual parameters

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 07

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**

Computational thinking and programming-2	FUNCTIONS	default parameters, positional parameters, return values. Practice of CBSE sample papers based questions on this topic	**3M**	**A functions has two types of parameters:**
				Formal Parameter: Formal parameters are written in the function prototype and function header of the definition. Formal parameters
				are local variables which are assigned values from the arguments when the function is called.
				Actual Parameter: When a function is called, the values that are passed in the call are called actual parameters. At the time of the
				call each actual parameter is assigned to the corresponding formal parameter in the function definition.
				Default Parameters: Python allows function arguments to have default values. If the function is called without the argument,
				the argument gets its default value.
				Example :
				def ADD(x, y): #Defining a function and x and y are formal parameters
				z=x+y
				print("Sum = ", z)
				a=float(input("Enter first number: "))
				b=float(input("Enter second number: "))
				ADD(a,b) #Calling the function by passing actual parameters
				In the above example, x and y are formal parameters. a and b are actual parameters.
					Q-1What are default argument?
					Ans.. Default arguments are used in function definition, if the function is called without the argument, the default argument gets its default value.
					Q-2 Predict the output of the following code fragment?
					def check(n1=1, n2=2):
					n1=n1+n2
					n2+=1
					print(n1,n2)
					check()
					check(2,1)
					check(3)
					Ans:
					3 3
					3 2
					5 3

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 08

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computational thinking and programming-2	FILE HANDLING	Text File: Basic operations on a text file,Appending data into a text file, standard input output and error streams,Practice of CBSE sample papers based questions on this topic	**5M**	**File:-** A file is a collection of related data stored in computer storage for future data retrieval. Data files can be stored in two ways: **1. Text Files**: Text files are structured as a sequence of lines, where each line includes a sequence of characters. 2**. Binary Files** : A binary file is any type of file that is not a text file. WORKING WITH TEXT FILES: Basic operations with files: a. Read the data from a file b. Write the data to a file c. Append the data to a file d. Delete a file a. Read the data from a file: There are 3 types of functions to read data from a file. □ read( ) : reads n bytes. if no n is specified, reads the entire file. □ readline( ) : Reads a line. if n is specified, reads n bytes. □ readlines( ): Reads all lines and returns a list	**Q.1 What is a data file in python?** Ans: A bunch of bytes / data stores on some storage device referred by the filename. **Q2**. What is the difference between "w" and "a" modes? Ans: "w" mode opens file in write mode but "a" mode opens file in append mode. **Q-3 Differentiate between a text file and a binary file.** Ans: A text file stores data as ASCII/UNICODE characters where as a binary file stores data in binary format (as it is stored in memory). Internal conversion is required in text file and hence slower but binary file does not need any translation and faster. **Q4**. **Write code to print just the last line of a text file "data.txt".** Ans: fin=open("data.txt","r") lineList=fin.readlines() print("Last line = ", lineList[-1])

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 09

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computational thinking and programming-2	FILE HANDLING	Binary File: Basic operations on a binary file:Pickle Module – methods load and dump; Read, Write/Create, Search, Append and Update .	2M	**Binary files** are used to store binary data such as images, video files, audio files etc. They store data in the binary format (0's and 1's) . In Binary files there is no delimiter for a line. To open files in binary mode, when specifying a mode, add 'b' to it. Pickle module can be imported to write or read data in a binary file. (**a) Write data to a Binary File:** **Example:** import pickle e={'Namita':25000,'Manya':30000,'Tanu':20000} f1=open('emp.dat','wb') pickle.dump(e,f1) f1.close() **Output:** A file named emp.dat will be created in current working directory.	**Que**- write a program in python to write and read structure, dictionary to the binary file **Ans** import pickle d1={'jan':31,'feb':28,'march':31,'april':30} f=open('binfile.dat','wb+') pickle.dump(d1,f) d2=pickle.load(f) print(d2) f.close()

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 10

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computational thinking and programming-2	FILE HANDLING	CSV File: Import csv module, functions, Using Python libraries: Import Python libraries	**5M**	**CSV (Comma Separated Values)** is a file format for data storage which looks like a text file. The information is organized with one record on each line and each field is separated by comma. CSV File Characteristics • One line for each record • Comma separated fields • Space-characters adjacent to commas are ignored • Fields with in-built commas are separated by double quote characters. Using python Libraries: -Frequently used modules are generally known as libraries which contain code for general purpose. •These libraries are the collection of methods, classes which can be used easily. •Python program is made using 3 different components. - –Library or package –Module –Functions/sub-modules Relation between Python Libraries, Module and Package: •A module is a file containing python definition, functions, variables, classes and statements. The extension of this file is ".py". •While Python package, is directory (folder) of python modules. •A library is collection of many packages in python.	**Q-1 What are CSV files** **Ans:-**it is a file which looks like a text file. The information is organized with one record on each line and each field is separated by comma. **Q-2What does csv.writer object do?** **ANS-**it adds delemation to the user data prior to storing data in the csv file on storage disk.

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 11

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computational thinking and programming-2	DATA STRUCTURE	Lists as covered in Class XI	**2M**	**Data structure:-**The logical or mathematical model of a particular organization of data is called data structure. It is a way of storing, accessing, manipulating data. **List:** An array or list is the collection of elements in ordered way**.** **There are two types of arrays:** **One dimensional list (1-D Lists)** **Multi-dimensional list (Nested Lists)** **Traversing 1-D array (List):** L=[10,20,30,40,50] n= len(L) for i in range(n): print(L[i])	**Q1**. What do you mean by Data Structure? Ans: Data Structure means organization of data. A data structure has well defined operations or behavior. **Q2.** What is a list? Ans: A list is a mutable sequence of data elements indexed by their position. A list is represented using [ ] . e.g L=[10,20,30] **Q3**. What is traversing? Write python code to traverse a list. Ans: Traversing means accessing or visiting or processing each element of any data structure. L=[10,20,30,40,50] for x in L : print(x) **Q-4** Predict the output with respect to the list L=[40,20,30,10,50] (a) print(L) **Ans**: [40, 20, 30, 10, 50] (b) print(len(L)) **Ans**: 5 (c) L.pop() ; print(L) **Ans**:50 [40, 20, 30, 10] (d L.append(70); print(L) Ans: [40, 20, 30, 10, 70] (e) L.sort(); print(L) Ans: [10, 20, 30, 40, 70]

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 12

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**

Computational thinking and programming-2	DATA STRUCTURE	Stacks – Push, Pop using a list	**3M**	**Stack:** It is a linear data structure.
				□ Stack is a list of elements in which an element may be inserted or deleted only at one end, called the TOP of the stack.
				□ It follows the principle Last In First Out (**LIFO).**
				□ **There are two basic operations associated with stack:**
				□ **Push :** Insert the element in stack
				□ **Pop :** Delete the element from stack**4.**
				Example:-
				def PushOn(Book):
				a=input(“enter book title :”)
				Book.append(a)
				def Pop(Book):
				if (Book==[]):
				print(“Stack empty”)
				else:
				print(“Deleted element :”)
				Book.pop()
				OR
				class Stack:
				Book=[]
				def PushOn(self):
				a=input(“enter book title:”)
				Stack.Book.append(a)
				def Pop(self):
				if (Stack.Book==[]):
				print(“Stack empty”)
				else:
				print(“Deleted element”,Stack.Book.pop())
					Q-1-Define Stack
					ANS:- A stack is a linear list also known as LIFO list with the special property that items can be added or removed from only one end called the top..
					Q2- Write a program to implement a stack for the students(studentno, name). Just implement Push.
					Ans: Program for push operation in a stack
					stk=[]
					top=-1
					def PUSH(stk,student):
					stk.append(student)
					top=len(stk)-1
					sno=int(input(“Enter student No:”)
					sn=input(“Enter student Name:”)
					data=[sno,sn]
					PUSH(stk,data)

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 13

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**1 HOUR PEN PAPER TEST ON COMPUTATIONAL THINKING AND PROGRAMMING**				

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 14

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computer Networks	EVALUTION OF NETWORKING AND DATA COMMUNICATION TERMINOLOGIES	ARPANET, Internet, Interspace, switching techniques .Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate.	**2M**	A computer network is a set of nodes like computers and networking devices that are connected through communication for the purpose of communication and sharing resources(hardware/software) among the users. **ARPANET** (Advanced Research Projects Agency NETwork): In 1969, The US govt.formed an agency named ARPANET to connect computers at various universities and defense agencies. **Internet (INTERconnection NETwork):** The Internet is a worldwide network of computer networks. It is not owned by anybody. The internet has evolved from ARPANET **Switching Techniques**: Switching techniques are used for transmitting data across networks. Different ways of sending data across the network are: Circuit Switching Packet Switching:	**Q1**-What is ARPAnet ? **ANS:-** ARPAnet (Advanced Research Project Agency Network is a project sponsored by U. S. Department of Defense. **Q2**- What do you understand by InterSpace? **ANS:-** Interspace is a client/server software program that allows multiple users to communicate online with real-time audio, video and text chat I dynamic 3D environments **Q3**.Name two switching circuits and explain any one **ANS:-** The two switching circuits are • Circuit Switching • Message Switching Circuit Switching - In this technique, first the complete physical connection between two computers is established and then data are transmitted from the source computer to the destination computer.

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 15

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Computer Networks	TRANSMISSION MEDIA AND NETWORK DEVICES	Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link. Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card.	**2M**	A communication channel is either a physical transmission medium such as a wire, or to a logical connection over a multiplexed medium such as a radio channel in telecommunications and computer networking. **Wireless Networks** – It uses high-frequency radio waves rather than wires to communicate. Wireless allows for devices to be shared without networking cable which increases mobility but decreases range. a)Infrared Wave Transmission b) Radio Wave Transmission c)Microwave radio d)Satellite Communication	**Q1**-Define the following: (i)RJ-45 (ii)Ethernet (iii) Ethernet card (iv)hub (v)Switch **ANS**- i) **RJ-45**: RJ45 is a standard type of connector for network cables and networks. It is an 8-pin connector usually used with Ethernet cables. (ii)**Ethernet:** Ethernet is a LAN architecture developed by Xerox Corp along with DEC and Intel. It uses a Bus or Star topology and supports data transfer rates of up to 10 Mbps. (iii)**Ethernet card**: The computers parts of Ethernet are connected through a special card called Ethernet card. It contains connections for either coaxial or twisted pair cables. (iv)**Hub:** In computer networking, a hub is a small, simple, low cost device that joins multiple computers together. (v)**Switch:** A Switch is a small hardware device that joins multiple computers together within one local area network (LAN).

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 16

Unit name	**Topic**	**Sub-topic**	**Marks of Topic as per CBSE Sample Paper**	**Content**	**Important questions**
Computer Networks	NETWORK TOPOLOGIES AND TYPES AND PROTOCOL	Bus, Star, Tree, PAN, LAN, WAN,MAN.TCP/IP, FTP), PPP, HTTP, SMTP, POP3, Remote Login (Telnet) and Internet, Wireless / Mobile, GSM, GPRS and WLL.	**2M**	The geometrical arrangement of computer resources, network devices along with communication channel is known as Network structure or Network topology. **Types of Physical Network Topologies** • Bus Topology • Star Topology • Ring Topology • Mesh Topology • Tree Topology • Hybrid Topology **Types of network** 1. Personal Area Network (PAN) – communication between two three mobile devices or PC for personal purpose. 2. Local Area Network (LAN) – limited area (within building) 3. Metropolitan Area Network (MAN) – within city 4. Wide Area Network (WAN) – within multiple city/state/ countries	**Q1**. What is protocol? Name some commonly used protocols. **ANS-.**A protocol means the rules that are applicable for a network or we can say that the common set of rules used for communication in network. Different types of protocols are: (i) HTTP : Hyper Text Transfer Protocol (ii) FTP : File Transfer Protocol (iii) SLIP : Serial Line Internet Protocol (iv) PPP : Point to Point Protocol (v) TCP/IP : Transmission Control Protocol/ Internet Protocol (vi) NTP : Network Time Protocol (vii) SMTP : Simple Mail Transfer Protocol (viii) POP : Post Office Protocol (ix) IMAP : Internet Mail Access Protocol **Q2. What is TCP/IP? What is HTTP?** **ANS**- TCP/IP (Transmission Control Protocol / Internet Protocol): A protocol for communication between computers used as a standard for transmitting data over networks and is the basis for standard Internet protocols. HTTP(Hyper Text Transfer Protocol) : An application level protocol with the lightness and speed necessary for distributed, shared, hypermedia information systems

DURATION OF REMEDIAL/REVISION CLASS- 1 HOUR

DAY- 17

Unit name	Topic	Sub-topic	Marks of Topic	Content	Important questions
Computer Networks	MOBILE TELECOMMUNICATION TECHNOLOGIES AND ELECTRONIC MAIL PROTOCOLS	1G, 2G, 3G, 4G and 5G; Mobile processors; SMTP, POP3, Protocols for Chat and Video Conferencing: VoIP, Wi-Fi and WiMax	**2M**	**TCP/IP (**Transmission Control Protocol/Internet Protocol)- also referred to as the Internet Protocol Suite, is the World Wide Web's core communication system which enables every Internet-based device to communicate with every other such device simultaneously. **SMTP –** Most of the internet systems use SMTP as a method to transfer mail from one user to another. SMTP is a push protocol and is used to send the mail to email server. it is usually used with one of two other protocols **Point-to-Point Protocol (PPP**) is an open standard protocol that is mostly used to provide connections over point-to-point serial links. The main purpose of PPP is to transport Layer 3 packets over a Data Link layer point-to-point link **VOIP** – Voice over Internet Protocol (VoIP), is a technology that allows us to make voice calls using a broadband Internet connection instead of a regular (or analog) phone line. **WI-FI:-** Wi-Fi is an acronym for Wireless Fidelity. It is a wireless networking technology that uses radio waves to provide wireless high-speed internet and network connections. **WiMAX** :-is an acronym for Worldwide Interoperability for Microwave Access. It also goes by the IEEE name	**Q1**-Define the following: (i)3G (ii)EDGE (iii)SMS (iv)TDMA ANS-(**i) 3G**: 3G (Third Generation) mobile communication technology is a broadband, packet-based transmission of text, digitized voice, video and multimedia at data rates up to 2 mbps, offering a consistent set of services to mobile computer and phone users no matter where they are located in the world. (ii)EDGE: EDGE (Enhanced Data rates for Global Evolution) is radio based high-speed of mobile data standard, developed specifically to meet the bandwidth needs of 3G. (iii)SMS: SMS (Short Message Service) is the transmission of short text messages to and from a mobile phone, fax machine and IP address. (iv)TDMA: TDMA (Time Division Multiple Access) is a technology for delivering digital wireless service using time-division multiplexing (TDM).

DURATION OF REMEDIAL/REVISION CLASS- 1 HOUR

DAY- 18

Unit name	Topic	Sub-topic	Marks of Topic	Content	Important questions
Computer Networks	NETWORKS SECURITY CONCEPTS AND INTRODUCTION TO WEB SERVICES	Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https; India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking, WWW, (HTML), (XML); (HTTP); Domain Names; URL; Website, Web browser, Webservers ,webhosting	**2M**	**Computer worm -** is a malicious, self-replicating software program (popularly termed as 'malware') which affects the functions of software and hardware programs. **Trojan horse -** or Trojan, is a type of malicious code or software that looks legitimate but can take control of computer. A Trojan is designed to damage, disrupt, steal, or in general inflict some other harmful action on data or network. **Spam -** is any kind of unwanted, unsolicited digital communication that gets sent out in bulk through email . **Cookies -** are files that contain small pieces of data — like a username and password — that are exchanged between a user's computer and a web server to identify specific users and improve their browsing experience. **Cyber Crime -** Any crime that involves a computer and a network is called a "Computer Crime" or "Cyber Crime **Intellectual Property (IP)** – is a property created by a person or group of persons using their own intellect for ultimate use in commerce and which is already not available in the public domain	**Q1.** What is spyware? **ANS**-Spyware is software that is installed on a computing device without the end user's knowledge. Any software can be classified as spyware if it is downloaded without the user's authorization. Spyware is controversial because even when it is installed for relatively innocuous reasons, it can violate the end user's privacy and has the potential to be abused **Q2-Diffrentiate between XML and HTML** **ANS:-**In HTML (Hyper text markup language) both tag semantics and the tag set are fixed whereas, XML (extensible markup language) is a meta language for describing markup language .XML provides facility to define tags.

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 19

Unit name	**Topic**	**Sub-topic**	**Marks of Topic as per CBSE Sample Paper**	**Content**	**Important questions**
Computer Networks	**1 HOUR PEN PAPER TEST ON COMPUTER NETWORKS**				

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 20

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Database Management	DATABASE CONCEPTS AND RELATIONAL MODELS	Introduction to database concepts and its need. Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key;	**7M**	Database is a collection of data/information that is organized so that it can be easily accessed, managed and updated. **Relational database**:- is a collective set of multiple data sets organized by tables, records and columns. Relational database establish a well-defined relationship between database tables. **Domain** :It is collection of values from which the value is derived for a column. **Tuple / Entity / Record** - Rows of a table is called Tuple or Record. **Attribute/ Field**- Column of a table is called Attribute or Field. **Degree** - Number of columns (attributes) in a table. **Cardinality** - Number of rows (Records) in a table. Types of keys in DBMS **Primary Key** – A primary is a column or set of columns in a table that uniquely identifies tuples (rows) in that table. **Candidate Key** –It is an attribute or a set of attributes or keys participating for Primary Key, to uniquely identify each record in that table. **Alternate Key** – Out of all candidate keys, only one gets selected as primary key, remaining keys are known as alternate or secondary keys. **Foreign Key** – Foreign keys are the columns of a table that points to the primary key of another table.	**Q.1** State two advantages of using Databases. Ans: Databases help in reducing Data Duplication i.e. Data Redundancy and controls Data Inconsistency. **Q2**-Define – Relation, Tuple, Degree, Cardinality Ans: A Relation is logically related data organized in the form of tables. Tuple indicates a row in a relation. Degree indicates the number of Columns. Cardinality indicates the number of Columns. **Q3**-What is a Primary Key? Ans: A Primary Key is a set of one or more attributes (columns) of a relation used to uniquely identify the records in it. Q.**4** What is a Foreign Key? What is its use? Ans: A Foreign key is a non-key attribute of one relation whose values are derived from the primary key of some other relation. It is used to join two / more relations and extract data from them.

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 21

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Database Management	STRUCTURED QUERY LANGAUGE ,DATA TYPES AND SQL COMMANDS	Advantages of using SQL, Data Definition Language and Data Manipulation Language; number / decimal, character / varchar / varchar2, date;	**3M**	**SQL** is an acronym of Structured Query Language. It is a standard language developed and used for accessing and modifying relational databases. **Advantages of using SQL:-** 1.Interactive Language 2.Multiple data views- 3.Portability 4.No coding needed 5. Well defined standards **DDL (Data Definition Language)** To create database and table structure-commands like CREATE , ALTER , DROP etc. **DML (Data Manipulation Language**) Record/rows related operations. commands like SELECT...., INSERT..., DELETE..., UPDATE.... etc	**Q-1Name** some data types in MySQL Ans: Char, Varchar, Int, Decimal, Date, Time etc. **Q-2** Differentiate between Char and Varchar. Ans: Char means fixed length character data and Varchar means variable length character data. E.g. For the data "Computer" char (30) reserves constant space for 30 characters whereas Varchar (30) reserves space for only 8 characters. **Q-3** Differentiate between DDL and DML? Ans**. Data Definition Language (DDL): This is a category of SQL commands. All the commands** which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER. **Data Manipulation Language (DML):** This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE.

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 22

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	SQL COMMANDS	SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL / IS NULL,	**2M**	**A general form of SELECT is:** SELECT what to select(field name) FROM table(s) WHERE condition that the data must satisfy; • Comparison operators are: < ; <= ; = ; != or <> ; >= ; > • **Logical operators are**: AND ; OR ; NOT • Comparison operator for special value **NULL**: IS mysql> SELECT * FROM student; Selecting rows by using the WHERE clause in the SELECT command. mysql> SELECT * FROM student WHERE class="4"; □ **BETWEEN**- to access data in specified range mysql> SELECT * FROM Student WHERE class between 4 and 6; **IN-** operator allows us to easily test if the expression in the list of values. mysql> SELECT * FROM Student WHERE class in (4,5,6); □ **Pattern Matching – LIKE Operator** A string pattern can be used in SQL using the following wild card □ % Represents a substring in any length □ _ Represents a single character mysql> SELECT * FROM Student WHERE Name LIKE 'A%';	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL.**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 23

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Database Management	SQL COMMANDS	ORDER BY,GROUP BY, HAVING;	**2M**	**ORDER BY:-**To get descending order use DESC key word clause is used to sort the table data in either Ascending order or Descending order. By default, data is not inserted into Tables in any order unless we have an index. mysql> SELECT * FROM Student ORDER BY class; **The GROUP BY** clause groups a set of rows/records into a set of summary rows/records by values of columns or expressions. It returns one row for each group. We often use the GROUP BY clause with aggregate functions such as SUM, AVG, MAX, MIN, and COUNT. MySql>select class,count(*) from student group by class;	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 24

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Database Management	SQL FUNCTIONS	SUM ( ), AVG ( ), COUNT ( ), MAX ( ) and MIN ( );	**2M**	An aggregate function performs a calculation on multiple values and returns a single value. For example, you can use the **AVG()** aggregate function that takes multiple numbers and returns the average value of the numbers. Following is the list of aggregate functions supported by mysql. **SUM()-** Returns the sum of given column. **MIN()-** Returns the minimum value in the given column. **MAX()-** Returns the maximum value in the given column. **AVG()-** Returns the Average value of the given column. **COUNT()-** Returns the total number of values/ records as per given column**.**	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 25

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Database Management	JOINS	equi-join and natural join	**2M**	**Join –** Join is used to fetch data from two or more tables, which is joined to appear as single set of data. It is used for combining column from two or more tables by using values common to both tables. Types of JOIN :- Inner • Outer • Left • Right **INNER Join or EQUI Join⋈** This is a simple JOIN in which the result is based on matched data as per the equality condition specified in the SQL query**.** **e**.g.Select course.student_name from couse , student where course.student_name=student.student_name; **Natural JOIN(⋈)** Natural Join is a type of Inner join which is based on column having same name and same datatype present in both the tables to be joined.	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 26

Unit name	**Topic**	**Sub-topic**	**Marks of Topic**	**Content**	**Important questions**
Database Management	INTERFACE OF PYTHON WITH SQL DATABASE	Connecting SQL with Python, Creating Database connectivity Applications, Performing Insert, Update, Delete queries, Display data by using fetchone(), fetchall(), rowcount	**2M**	**Database Connectivity**-Database connectivity refers to connection and communication between an application and a database system. **Mysql.connector**-Library or package to connect from python to MySQL. **Command to install connectivity package:**- pip install mysql-connector-python **Command to import connec**tor:- import mysql.connector Steps for python MySQL connectivity 1 . Install Python 2. Install MySQL 3. Open Command prompt 4. Switch on internet connection 5. Type pip install mysql-connector-python and execute 6. Open python IDLE 7. import mysql.connector Multiple ways to retrieve data: **fetchall()**-Fetch all (remaining) rows of a query result, returning them as a sequence of sequences (e.g. a list of tuples) fetch many (size)-Fetch the next set of rows of a query result, returning a sequence of sequences. It will return number of rows that matches to the size argument. **fetchone()**-Fetch the next row of a query result set, returning a single sequence or None when no more data is available	**Q.1**- Which method is used to retrieve all rows and single row? Ans:-Fetchall(),fetchone() **Q.2** Write python-mysql connectivity to retrieve all the data of table student. Ans:-import mysql.connector mydb=mysql.connector.connect(user="root",host="localhost",passwd="123",database="inservice") mycursor=mydb.cursor() mycursor.execute("select * from student") for x in mycursor: print(x) **Q3**- Write command to install connector. Ans. pip install mysql-connector-python **Q.4**. Write command to import connector. Ans. import mysql.connector **Q.5** What is result set? Explain with example. Ans. Fetching rows or columns from result sets in Python. The fetch functions in the ibm_db API can iterate through the result set. If your result set includes columns that contain large data (such as BLOB or CLOB data), you can retrieve the data on a column-by-column basis to avoid large memory usage

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 27

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**1 HOUR PEN PAPER TEST ON DATABASE MANAGEMENT SYSTEM**				

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 28

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
BASED ON WHOLE SYLLABUS 3 HOURS PEN PAPER TEST-1					

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 29

Unit name	Topic	Sub-topic	Marks of Topic	Content	Important questions
BASED ON WHOLE SYLLABUS 3 HOURS PEN PAPER TEST-2					

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 30

Unit name	Topic	Sub-topic	Marks of Topic	Content	Important questions
BASED ON WHOLE SYLLABUS 3 HOURS PEN PAPER TEST-3					

KENDRIYA VIDYALAYA SANGATHAN RIGIONAL OFFICE RAIPUR
REMEDIAL /REVISION PLAN FOR LATE BLOOMERS
W.E.F. 01/02/2021
DURATION OF REMEDIAL CLASS- 1 HOUR
DAY- 01

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**PYTHON FUNDAMENTAL**	**Keywords, Operators and Practice of CBSE sample papers questions based on this topic**	**4M**	**Keywords:**- .Keywords are the words that have special meaning reserved by programming language. – They are reserved for special purpose and cannot be used for normal identifier names. – E.g. in, if, break, class, and, continue, True, False• **Operators:**-Operators are the symbol, which triggers some computation when applied on operand. **– Unary Operator**: those operators that require only one operand. • Unary Plus + • Unary Minus – • Bitwise Complement ~ • Logical Negation not – **Binary Operator**: those operators that require only two operand. • Arithmetic Operator +,-,*,/,% • Bitwise Operator &, ^, | • Shift Operator >> , << • Identity Operator is , is not	**Q1.** What is a python variable? Identify the variables that are invalid and state the reason Class, do, while, 4d, a+ **Ans:** - A variable in python is a container to store data values. a) do, while are invalid because they are python keyword b) 4d is invalid because the name can't be started with a digit. c) a+ is also not valid as no special symbol can be used in name except underscore (_). **Q2.** What is None literal in Python? **Ans**: Python has one special literal called "None". It is used to indicate something that has not yet been created. It is a legal empty value in Python

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 02

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions

Computational thinking and programming-2	**CONTROL STATEMENTS**	**Conditional statements, iterative computation and control flow. Practice of CBSE sample papers based questions on this topic**	**6M**	Control statements are used to control the flow of execution depending upon the specified condition/logic.
				There are three types of control statements 1. Decision Making Statements (if, elif, else)
				2. Iteration Statements (while and for Loops)
				3. Jump Statements (break, continue, pass)
				
				NOTE-for detail theory please refer concept part
					QUE- a=int(input("Enter any integer number :"))
					if(a==0):
					print("Number is Zero")
					elif(a>0):
					print("Number is Positive")
					else:
					print("Number is negative")
					ANS:- Enter any integer number :5
					Number is Positive
					QUE-2
					n=1
					while(n<4):
					print("Govind ", end=" ")
					n=n+1
					ANS:-OUTPUT Govind Govind Govind
					QUE-3
					for i in range(1,6):
					print(i, end=' ')
					ANS:- Output 1 2 3 4 5
					QUE-4
					for i in range(1,11):
					if(i==3):
					print("hello", end=' ')
					continue
					if(i==8):
					break
					if(i==5):
					pass
					else:
					print(i, end=' ');
					ANS:- 1 2 hello 4 6 7

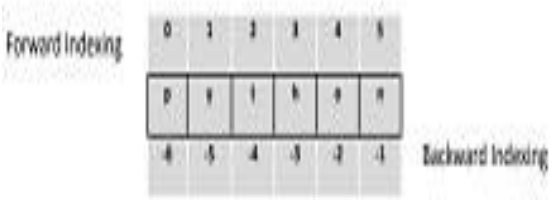
DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 03

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**LIST, TUPLE ,DICTONARY**	**Creation of a list, tuple & dictionary, Traversal of a list, tuple & dictionary Operations on a list ,tuple and & Dictionary .Practice of CBSE sample papers based questions on this topic**	**4M**	**List in Python**:-List is a standard data type of Python that can store a sequence of values belonging to any type. • List is mutable (modifiable) sequence i.e. element can be changed in place. • Example – List=[1,2,3,4,5] – List1=['p','r','o','b','l','e','m'] – List2=['pan','ran','oggi','blade','lemon','egg','mango'] **Tuples in Python**:-It is a sequence of immutable objects. It is just like a list. Difference between a tuple and a list is that the tuple cannot be changed like a list. List uses square bracket whereas tuple use parentheses. L=[1,2,3,4,5] Mutable Elements of list can be changed T=(1,2,3,4,5) Immutable Elements of tuple can not be changed **Dictionary in Python:-** is an unordered collection of data values, used to store data values along with the keys. Dictionary holds key: value pair. Key value is provided in the dictionary to make it more optimized. Each key-value pair in a Dictionary is separated by a colon:, whereas each key is separated by a 'comma'. dict={ "a": "alpha", "o": "omega", "g": "gamma" }	**Q1.** Find the error in following code. State the reason of the error. aLst = { 'a':1 ,' b':2, 'c':3 } print (aLst['a','b']) **Ans**: The above code will produce KeyError, the reason being that there is no key same as the list ['a','b'] in dictionary aLst. **Q2.** Find and write the output of the following list=['p','r','o','b','l','e','m'] list[1:3]=[] print(list) list[2:5]=[] print(list) ANS:- ['p','b','l','e','m'] ['p','b']

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 04

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**STRINGS**	**Traversal, operations – concatenation, repetition, membership; functions/ methods. Practice of CBSE sample papers based questions on this topic**	**2M**	**String:-**String are character enclosed in quotes of any type like single quotation marks, single quotation marks and triple quotation marks. – 'Computer' – "Computer" – '''Computer''' • String are immutable • Empty string has 0 characters. • String is sequence of characters, each character having unique position or index 	**Q1** Find output generated by the following code: String Str="Computer" Str[-4:] Str*2 **ANS:-** uter 'ComputerComputer' **Q-2:-** Find output of the following code fragment. x="hello world" print(x[:2],x[:-2],x[-2:]) print(x[6],x[2:4]) print(x[2:-3],x[-4:-2]) Ans: he hello wor ld w ll llo wo or

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 05

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions

Computational thinking and programming-2	**FUNCTIONS**	**Functions: scope, functions using libraries: mathematical and string functions.**	**3M**	**Definition:** Functions are the subprograms that perform specific task. Functions are the small modules.
				Types of Functions:
				There are three types of functions in python:
				Built in functions
				Functions defined in modules
				User defined functions
				Scope of a variable:- is the portion of a program where the variable is recognized. Parameters and variables defined inside a function is
				not visible from outside. Hence, they have a local scope.
				There are two types of scope for variables:
				i) Local Scope
				ii) Global Scope
				Local Scope: Variable used inside the function. It cannot be accessed outside the function. In this scope, the lifetime of variables
				inside a function is as long as the function executes. They are destroyed once we return from the function. Hence, a function does not remember the value of a variable from its previous calls.
				Global Scope: Variable can be accessed outside the function. In this scope, Lifetime of a variable is the period throughout which the variable exits in the memory.
				Example:
				def my_func():
				x = 10
					Q-1What is default parameter?
					Ans: A parameter having default value in the function header is known as a default parameter.
					Q2. Can a function return multiple values in python?
					Ans: YES.
					Q3. Rewrite the correct code after removing the errors:
					def SI(p,t=2,r):
					return (p*r*t)/100
					Ans: - **def SI(p, r, t=2):**
					return(p*r*t)/100
					Q4. How many values a python function can return? Explain how?
					Ans: Python function can return **more than one** values.
					def square_and_cube(X):
					return X*X, X*X*X, X*X*X*X
					a=3
					x,y,z=square_and_cube(a)
					print(x,y,z

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 06

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**FUNCTIONS**	**User defined functions, parameter passing ,passing strings, lists, tuples, dictionaries to functions. Practice of CBSE sample papers based questions on this topic**	**3M**	**User Defined Functions:** The functions those are defined by the user are called user defined functions. The syntax to define a function is: def function-name (parameters) : Keyword def marks the start of function header. A function name to uniquely identify it. Function naming follows the same rules of writing identifiers in Python. Parameters (arguments) through which we pass values to a function. They are optional. A colon (:) to mark the end of function header. One or more valid python statements that make up the function body. Statements must have same indentation level. An optional return statement to return a value from the function. #statement(s) Example: def display(name): print("Hello " + name + " How are you?")	**Q1**. Find the output of the following L1 = [100,900,300,400,500] START = 1 SUM = 0 for C in range(START,4): SUM = SUM + L1[C] print(C, ":", SUM) SUM = SUM + L1[0]*10 print(SUM) **ANS:- O/P** 1:900 1900 3200 3:3600 4600 **Q-2.**What is the difference between actual and formal parameters ? **ANS:-** Actual parameters are those parameters which are used in function call statement and formal parameters are those parameters which are used in function header (definition). e.g. def sum(a,b): # a and b are formal parameters return a+b x,y=5,10 res=sum(x,y) # x and y are actual parameters

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 07

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions

Computational thinking and programming-2	**FUNCTIONS**	**default parameters, positional parameters, return values. Practice of CBSE sample papers based questions on this topic**	**3M**	**A functions has two types of parameters:**
				Formal Parameter: Formal parameters are written in the function prototype and function header of the definition. Formal parameters are local variables which are assigned values from the arguments when the function is called.
				Actual Parameter: When a function is called, the values that are passed in the call are called actual parameters. At the time of the
				call each actual parameter is assigned to the corresponding formal parameter in the function definition.
				Default Parameters: Python allows function arguments to have default values. If the function is called without the argument, the argument gets its default value.
				Example :
				def ADD(x, y): #Defining a function and x and y are formal parameters
				z=x+y
				print("Sum = ", z)
				a=float(input("Enter first number: "))
				b=float(input("Enter second number: "))
				ADD(a,b) #Calling the function by passing actual parameters
				In the above example, x and y are formal parameters. a and b are actual parameters.
					Q-1What are default argument?
					Ans.. Default arguments are used in function definition, if the function is called without the argument, the default argument gets its default value.
					Q-2 Predict the output of the following code fragment?
					def check(n1=1, n2=2):
					n1=n1+n2
					n2+=1
					print(n1,n2)
					check()
					check(2,1)
					check(3)
					Ans:
					3 3
					3 2
					5 3

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 08

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**FILE HANDLING**	**Text File: Basic operations on a text file, Appending data into a text file, standard input output and error streams, Practice of CBSE sample papers based questions on this topic**	**5M**	**File:-** A file is a collection of related data stored in computer storage for future data retrieval. Data files can be stored in two ways: **1. Text Files**: Text files are structured as a sequence of lines, where each line includes a sequence of characters. 2**. Binary Files** : A binary file is any type of file that is not a text file. WORKING WITH TEXT FILES: Basic operations with files: a. Read the data from a file b. Write the data to a file c. Append the data to a file d. Delete a file a. Read the data from a file: There are 3 types of functions to read data from a file. □ read( ) : reads n bytes. if no n is specified, reads the entire file. □ readline( ) : Reads a line. if n is specified, reads n bytes. □ readlines( ): Reads all lines and returns a list	**Q.1 What is a data file in python?** Ans: A bunch of bytes / data stores on some storage device referred by the filename. **Q2**. What is the difference between "w" and "a" modes? Ans: "w" mode opens file in write mode but "a" mode opens file in append mode. **Q-3 Differentiate between a text file and a binary file.** Ans: A text file stores data as ASCII/UNICODE characters where as a binary file stores data in binary format (as it is stored in memory). Internal conversion is required in text file and hence slower but binary file does not need any translation and faster. **Q4**. **Write code to print just the last line of a text file "data.txt".** Ans: fin=open("data.txt","r") lineList=fin.readlines() print("Last line = ", lineList[-1])

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 09

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**FILE HANDLING**	**Binary File: Basic operations on a binary file:Pickle Module – methods load and dump; Read, Write/Create , Search, Append and Update .**	**2M**	**Binary files** are used to store binary data such as images, video files, audio files etc. They store data in the binary format (0's and 1's) . In Binary files there is no delimiter for a line. To open files in binary mode, when specifying a mode, add 'b' to it. Pickle module can be imported to write or read data in a binary file. (**a) Write data to a Binary File:** **Example:** import pickle e={'Namita':25000,'Manya':30000,'Tanu':20000} f1=open('emp.dat','wb') pickle.dump(e,f1) f1.close() **Output:** A file named emp.dat will be created in current working directory.	**Que**- write a program in python to write and read structure, dictionary to the binary file **Ans** import pickle d1={'jan':31,'feb':28,'march':31,'april':30} f=open('binfile.dat','wb+') pickle.dump(d1,f) d2=pickle.load(f) print(d2) f.close()

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 10

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**FILE HANDLING**	**CSV File: import csv module, functions, Using Python libraries: Import Python libraries**	**5M**	**CSV (Comma Separated Values)** is a file format for data storage which looks like a text file. The information is organized with one record on each line and each field is separated by comma. CSV File Characteristics • One line for each record • Comma separated fields • Space-characters adjacent to commas are ignored • Fields with in-built commas are separated by double quote characters. Using python Libraries:-Frequently used modules are generally known as libraries which contain code for general purpose. •These libraries are the collection of methods, classes which can be used easily. •Python program is made using 3 different components. - –Library or package –Module –Functions/sub-modules Relation between Python Libraries, Module and Package: •A module is a file containing python definition, functions, variables, classes and statements. The extension of this file is ".py". •While Python package, is directory (folder) of python modules. •A library is collection of many packages in python.	**Q-1 What are CSV files** **Ans:-**it is a file which looks like a text file. The information is organized with one record on each line and each field is separated by comma. **Q-2What does csv.writer object do?** **ANS-**it adds delemation to the user data prior to storing data in the csv file on storage disk.

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 11

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2	**DATA STRUCTURE**	**Lists as covered in Class XI**	**2M**	**Data structure:-**The logical or mathematical model of a particular organization of data is called data structure. It is a way of storing, accessing, manipulating data. **List:** An array or list is the collection of elements in ordered way**.** **There are two types of arrays:** **One dimensional list (1-D Lists)** **Multi-dimensional list (Nested Lists)** **Traversing 1-D array (List):** L=[10,20,30,40,50] n=len(L) for i in range(n): print(L[i])	**Q1**. What do you mean by Data Structure? Ans: Data Structure means organization of data. A data structure has well defined operations or behavior. **Q2.** What is a list? Ans: A list is a mutable sequence of data elements indexed by their position. A list is represented using [ ] . e.g L=[10,20,30] **Q3**. What is traversing? Write python code to traverse a list. Ans: Traversing means accessing or visiting or processing each element of any data structure. L=[10,20,30,40,50] for x in L : print(x) **Q-4** Predict the output with respect to the list L=[40,20,30,10,50] (a) print(L) **Ans**: [40, 20, 30, 10, 50] (b) print(len(L)) **Ans**: 5 (c) L.pop() ; print(L) **Ans**:50 [40, 20, 30, 10] (d L.append(70); print(L) Ans: [40, 20, 30, 10, 70] (e) L.sort(); print(L) Ans: [10, 20, 30, 40, 70]

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 12

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions

Computational thinking and programming-2	**DATA STRUCTURE**	**Stacks – Push, Pop using a list**	**3M**	**Stack:** It is a linear data structure.
				□ Stack is a list of elements in which an element may be inserted or deleted only at one end, called the TOP of the stack.
				□ It follows the principle Last In First Out (**LIFO).**
				□ **There are two basic operations associated with stack:**
				□ **Push :** Insert the element in stack
				□ **Pop :** Delete the element from stack4**.**
				Example:-
				def PushOn(Book):
				a=input("enter book title :")
				Book.append(a)
				def Pop(Book):
				if (Book==[]):
				print("Stack empty")
				else:
				print("Deleted element :")
				Book.pop()
				OR
				class Stack:
				Book=[]
				def PushOn(self):
				a=input("enter book title:")
				Stack.Book.append(a)
				def Pop(self):
				if (Stack.Book==[]):
				print("Stack empty")
				else:
				print("Deleted element :",Stack.Book.pop())
					Q-1-Define Stack
					ANS:- A stack is a linear list also known as LIFO list with the special property that items can be added or removed from only one end called the top..
					Q2- Write a program to implement a stack for the students(studentno, name). Just implement Push.
					Ans: Program for push operation in a stack
					stk=[]
					top=-1
					def PUSH(stk,student):
					stk.append(student)
					top=len(stk)-1
					sno=int(input("Enter student No:")
					sn=input("Enter student Name:")
					data=[sno,sn]
					PUSH(stk,data)

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 13

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computational thinking and programming-2		**SPIRAL TEACHING**		**Spiral Teaching +Test**	

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 14

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computer Networks	**EVALUTION OF NETWORKING AND DATA COMMUNICATION TERMINOLOGIES**	**ARPANET, Internet, Interspace, switching techniques .Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate.**	**2M**	A computer network is a set of nodes like computers and networking devices that are connected through communication for the purpose of communication and sharing resources(hardware/software) among the users. **ARPANET** (Advanced Research Projects Agency NETwork): In 1969, The US govt. formed an agency named ARPANET to connect computers at various universities and defense agencies. **Internet (INTERconnection NETwork):** The Internet is a worldwide network of computer networks. It is not owned by anybody. The internet has evolved from ARPANET **Switching Techniques**: Switching techniques are used for transmitting data across networks. Different ways of sending data across the network are: Circuit Switching Packet Switching:	**Q1**-What is ARPAnet ? **ANS:-** ARPAnet (Advanced Research Project Agency Network is a project sponsored by U. S. Department of Defense. **Q2**- What do you understand by InterSpace? **ANS:-** Interspace is a client/server software program that allows multiple users to communicate online with real-time audio, video and text chat I dynamic 3D environments **Q3**.Name two switching circuits and explain any one **ANS:-** The two switching circuits are • Circuit Switching • Message Switching Circuit Switching - In this technique, first the complete physical connection between two computers is established and then data are transmitted from the source computer to the destination computer.

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 15

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computer Networks	**TRANSMISSION MEDIA AND NETWORK DEVICES**	**Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link. Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card.**	**2M**	A communication channel is either a physical transmission medium such as a wire, or to a logical connection over a multiplexed medium such as a radio channel in telecommunications and computer networking. **Wireless Networks** – It uses high-frequency radio waves rather than wires to communicate. Wireless allows for devices to be shared without networking cable which increases mobility but decreases range. a)Infrared Wave Transmission b) Radio Wave Transmission c)Microwave radio d)Satellite Communication	**Q1**-Define the following: (i)RJ-45 (ii)Ethernet (iii) Ethernet card (iv)hub (v)Switch **ANS**- i) **RJ-45**: RJ45 is a standard type of connector for network cables and networks. It is an 8-pin connector usually used with Ethernet cables. (ii)**Ethernet:** Ethernet is a LAN architecture developed by Xerox Corp along with DEC and Intel. It uses a Bus or Star topology and supports data transfer rates of up to 10 Mbps. (iii)**Ethernet card**: The computers parts of Ethernet are connected through a special card called Ethernet card. It contains connections for either coaxial or twisted pair cables. (iv)**Hub:** In computer networking, a hub is a small, simple, low cost device that joins multiple computers together. (v)**Switch:** A Switch is a small hardware device that joins multiple computers together within one local area network (LAN).

DURATION OF REMEDIAL CLASS- 1 HOUR

DAY- 16

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computer Networks	**NETWORK TOPOLOGIES AND TYPES AND PROTOCOL**	**Bus, Star, Tree, PAN, LAN, WAN,MAN. TCP/IP, FTP), PPP, HTTP, SMTP, POP3, Remote Login (Telnet) and Internet, Wireless / Mobile, GSM, GPRS and WLL.**	**2M**	The geometrical arrangement of computer resources, network devices along with communication channel is known as Network structure or Network topology. **Types of Physical Network Topologies** • Bus Topology • Star Topology • Ring Topology • Mesh Topology • Tree Topology • Hybrid Topology **Types of network** 1. Personal Area Network (PAN) – communication between two three mobile devices or PC for personal purpose. 2. Local Area Network (LAN) – limited area (within building) 3. Metropolitan Area Network (MAN) – within city 4. Wide Area Network (WAN) – within multiple city/state/ countries	**Q1**.What is protocol? Name some commonly used protocols. **ANS-.**A protocol means the rules that are applicable for a network or we can say that the common set of rules used for communication in network. Different types of protocols are : (i) HTTP : Hyper Text Transfer Protocol (ii) FTP : File Transfer Protocol (iii) SLIP : Serial Line Internet Protocol (iv) PPP : Point to Point Protocol (v) TCP/IP : Transmission Control Protocol/ Internet Protocol (vi) NTP : Network Time Protocol (vii) SMTP : Simple Mail Transfer Protocol (viii) POP : Post Office Protocol (ix) IMAP : Internet Mail Access Protocol **Q2.What is TCP/IP? What is HTTP?** **ANS**- TCP/IP (Transmission Control Protocol / Internet Protocol): A protocol for communication between computers used as a standard for transmitting data over networks and is the basis for standard Internet protocols. HTTP(Hyper Text Transfer Protocol) : An application level protocol with the lightness and speed necessary for distributed, shared, hypermedia information systems

DURATION OF REMEDIAL/REVISION CLASS- 1 HOUR

DAY- 17

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computer Networks	**MOBILE TELECOMMUNICATION TECHNOLOGIES AND ELECTRONIC MAIL PROTOCOLS**	**1G, 2G, 3G, 4G and 5G; Mobile processors; SMTP, POP3, Protocols for Chat and Video Conferencing : VoIP, Wi-Fi and WiMax**	**2M**	**TCP/IP (**Transmission Control Protocol/Internet Protocol)- also referred to as the Internet Protocol Suite, is the World Wide Web's core communication system which enables every Internet-based device to communicate with every other such devices simultaneously . **SMTP –** Most of the internet systems use SMTP as a method to transfer mail from one user to another. SMTP is a push protocol and is used to send the mail to email server. it is usually used with one of two other protocols **.Point-to-Point Protocol (PPP**) is an open standard protocol that is mostly used to provide connections over point-to-point serial links. The main purpose of PPP is to transport Layer 3 packets over a Data Link layer point-to-point link **VOIP** – Voice over Internet Protocol (VoIP), is a technology that allows us to make voice calls using a broadband Internet connection instead of a regular (or analog) phone line. **WI-FI:-** Wi-Fi is an acronym for Wireless Fidelity. It is a wireless networking technology that uses radio waves to provide wireless high-speed internet and network connections. **WiMAX** :-is an acronym for Worldwide Interoperability for Microwave Access. It also goes by the IEEE name	**Q1**-Define the following: (i)3G (ii)EDGE (iii)SMS (iv)TDMA ANS-**(i) 3G**: 3G (Third Generation) mobile communication technology is a broadband, packet-based transmission of text, digitized voice, video and multimedia at data rates up to 2 mbps, offering a consistent set of services to mobile computer and phone users no matter where they are located in the world. (ii)EDGE: EDGE (Enhanced Data rates for Global Evolution) is radio based high-speed of mobile data standard, developed specifically to meet the bandwidth needs of 3G. (iii)SMS: SMS (Short Message Service) is the transmission of short text messages to and from a mobile phone, fax machine and IP address. (iv)TDMA: TDMA (Time Division Multiple Access) is a technology for delivering digital wireless service using time-division multiplexing (TDM).

DURATION OF REMEDIAL/REVISION CLASS- 1 HOUR

DAY- 18

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computer Networks	**NETWORKS SECURITY CONCEPTS AND INTRODUCTION ON TO WEB SERVICES**	**Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https; India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking, WWW, (HTML), (XML); (HTTP); Domain Names; URL; Website, Web browser, Webservers ,webhosting**	**2M**	**Computer worm -** is a malicious, self-replicating software program (popularly termed as 'malware') which affects the functions of software and hardware programs. **Trojan horse -** or Trojan, is a type of malicious code or software that looks legitimate but can take control of computer. A Trojan is designed to damage, disrupt, steal, or in general inflict some other harmful action on data or network. **Spam -** is any kind of unwanted, unsolicited digital communication that gets sent out in bulk through email . **Cookies -** are files that contain small pieces of data — like a username and password — that are exchanged between a user's computer and a web server to identify specific users and improve their browsing experience. **Cyber Crime -** Any crime that involves a computer and a network is called a "Computer Crime" or "Cyber Crime **Intellectual Property (IP) –** is a property created by a person or group of persons using their own intellect for ultimate use in commerce and which is already not available in the public domain	**Q1.** What is spyware? **ANS**-Spyware is software that is installed on a computing device without the end user's knowledge. Any software can be classified as spyware if it is downloaded without the user's authorization. Spyware is controversial because even when it is installed for relatively innocuous reasons, it can violate the end user's privacy and has the potential to be abused **Q2-Diffrentiate between XML and HTML** **ANS:-**In HTML (Hyper text markup language) both tag semantics and the tag set are fixed where as, XML (extensible markup language) is a meta language for describing markup language .XML provides facility to define tags.

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 19

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Computer Networks	**SPIRAL TEACHING**	**Spiral Teaching +Test**			

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 20

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**DATABASE CONCEPTS AND RELATIONAL MODELS**	**Introduction to database concepts and its need. Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key;**	**7M**	Database is a collection of data/information that is organized so that it can be easily accessed, managed and updated. **Relational database**:- is a collective set of multiple data sets organized by tables, records and columns. Relational database establish a well-defined relationship between database tables. **Domain** :It is collection of values from which the value is derived for a column. **Tuple / Entity / Record** - Rows of a table is called Tuple or Record. **Attribute/ Field**- Column of a table is called Attribute or Field. **Degree** - Number of columns (attributes) in a table. **Cardinality** - Number of rows (Records) in a table. Types of keys in DBMS **Primary Key** – A primary is a column or set of columns in a table that uniquely identifies tuples (rows) in that table. **Candidate Key** –It is an attribute or a set of attributes or keys participating for Primary Key, to uniquely identify each record in that table. **Alternate Key** – Out of all candidate keys, only one gets selected as primary key, remaining keys are known as alternate or secondary keys. **Foreign Key** – Foreign keys are the columns of a table that points to the primary key of another table.	**Q.1** State two advantages of using Databases. Ans: Databases help in reducing Data Duplication i.e. Data Redundancy and controls Data Inconsistency. **Q2**-Define – Relation, Tuple, Degree, Cardinality Ans: A Relation is logically related data organized in the form of tables. Tuple indicates a row in a relation. Degree indicates the number of Columns. Cardinality indicates the number of Columns. **Q3**-What is a Primary Key? Ans: A Primary Key is a set of one or more attributes (columns) of a relation used to uniquely identify the records in it. Q.**4** What is a Foreign Key? What is its use? Ans: A Foreign key is a non-key attribute of one relation whose values are derived from the primary key of some other relation. It is used to join two / more relations and extract data from them.

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 21

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**STRUCTURED QUERY LANGAUGE ,DATA TYPES AND SQL COMMANDS**	**Advantages of using SQL, Data Definition Language and Data Manipulation Language; number / decimal, character / varchar / varchar2, date;**	**3M**	**SQL** is an acronym of Structured Query Language. It is a standard language developed and used for accessing and modifying relational databases. **Advantages of using SQL:-** 1.Interactive Language 2.Multiple data views- 3.Portability 4.No coding needed 5. Well defined standards **DDL (Data Definition Language)** To create database and table structure- commands like CREATE , ALTER , DROP etc. **DML (Data Manipulation Language**) Record/rows related operations. commands like SELECT...., INSERT..., DELETE..., UPDATE.... etc	**Q-1Name** some data types in MySQL Ans: Char, Varchar, Int, Decimal, Date, Time etc. **Q-2** Differentiate between Char and Varchar. Ans: Char means fixed length character data and Varchar means variable length character data. E.g. For the data "Computer" char (30) reserves constant space for 30 characters whereas Varchar (30) reserves space for only 8 characters. **Q-3** Differentiate between DDL and DML? Ans**. Data Definition Language (DDL): This is a category of SQL commands. All the commands** which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER. **Data Manipulation Language (DML):** This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE.

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 22

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**SQL COMMANDS**	**SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL / IS NULL,**	**2M**	**A general form of SELECT is:** SELECT what to select(field name) FROM table(s) WHERE condition that the data must satisfy; • Comparison operators are: < ; <= ; = ; != or <> ; >= ; > • **Logical operators are**: AND ; OR ; NOT • Comparison operator for special value **NULL**: IS mysql> SELECT * FROM student; Selecting rows by using the WHERE clause in the SELECT command. mysql> SELECT * FROM student WHERE class="4"; □ **BETWEEN**- to access data in specified range mysql> SELECT * FROM Student WHERE class between 4 and 6; **IN-** operator allows us to easily test if the expression in the list of values. mysql> SELECT * FROM Student WHERE class in (4,5,6); □ **Pattern Matching – LIKE Operator** A string pattern can be used in SQL using the following wild card □ % Represents a substring in any length □ _ Represents a single character mysql> SELECT * FROM Student WHERE Name LIKE 'A%';	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL.**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 23

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**SQL COMMANDS**	**ORDER BY,GROUP BY, HAVING;**	**2M**	**ORDER BY:-**To get descending order use DESC key word clause is used to sort the table data in either Ascending order or Descending order. By default, data is not inserted into Tables in any order unless we have an index. mysql> SELECT * FROM Student ORDER BY class; **The GROUP BY** clause groups a set of rows/records into a set of summary rows/records by values of columns or expressions. It returns one row for each group. We often use the GROUP BY clause with aggregate functions such as SUM, AVG, MAX, MIN, and COUNT. MySql>select class,count(*) from student group by class;	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 24

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**SQL FUNCTIONS**	**SUM ( ), AVG ( ), COUNT ( ), MAX ( ) and MIN ( );**	**2M**	An aggregate function performs a calculation on multiple values and returns a single value. For example, you can use the **AVG()** aggregate function that takes multiple numbers and returns the average value of the numbers. Following is the list of aggregate functions supported by mysql. **SUM()-** Returns the sum of given column. **MIN()-** Returns the minimum value in the given column. **MAX()-** Returns the maximum value in the given column. **AVG()-** Returns the Average value of the given column. **COUNT()-** Returns the total number of values/ records as per given column**.**	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 25

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**JOINS**	**equi-join and natural join**	**2M**	**Join –** Join is used to fetch data from two or more tables, which is joined to appear as single set of data. It is used for combining column from two or more tables by using values common to both tables. Types of JOIN :- Inner • Outer • Left • Right **INNER Join or EQUI Join⋈** This is a simple JOIN in which the result is based on matched data as per the equality condition specified in the SQL query**.** **e**.g.Select course.student_name from couse , student where course.student_name=student.student_name ; **Natural JOIN(⋈)** Natural Join is a type of Inner join which is based on column having same name and same data type present in both the tables to be joined.	**FOR QUERY BASED QUESTION PLEASE REFER QUESTIONS FROM SQL PART IN STUDY MATERIAL**

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 26

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**INTERFACE OF PYTHON WITH SQL DATABASE**	**Connecting SQL with Python, Creating Database connectivity Applications ,Performing Insert, Update, Delete queries, Display data by using fetchone(), fetchall(), rowcount**	**2M**	**Database connectivity**-Database connectivity refers to connection and communication between an application and a database system. **Mysql.connector**-Library or package to connect from python to MySQL. **Command to install connectivity package:**- pip install mysql-connector-python **Command to import connec**tor:- import mysql.connector Steps for python MySQL connectivity 1 . Install Python 2. Install MySQL 3. Open Command prompt 4. Switch on internet connection 5. Type pip install mysql-connector-python and execute 6. Open python IDLE 7. import mysql.connector Multiple ways to retrieve data: **fetchall()**-Fetch all (remaining) rows of a query result, returning them as a sequence of sequences (e.g. a list of tuples) fetch many (size)-Fetch the next set of rows of a query result, returning a sequence of sequences. It will return number of rows that matches to the size argument. **fetchone()**-Fetch the next row of a query result set, returning a single sequence or None when no more data is available	**Q.1**- Which method is used to retrieve all rows and single row? Ans:-fetchall(),fetchone() **Q.2** Write python-mysql connectivity to retrieve all the data of table student. Ans:-import mysql.connector mydb=mysql.connector.connect(user="root",host="localhost",passwd="123",database="inservice") mycursor=mydb.cursor() mycursor.execute("select * from student") for x in mycursor: print(x) **Q3**- Write command to install connector. Ans. pip install mysql-connector-python **Q.4**. Write command to import connector. Ans. import mysql.connector **Q.5** What is result set? Explain with example. Ans. Fetching rows or columns from result sets in Python. The fetch functions in the ibm_db API can iterate through the result set. If your result set includes columns that contain large data (such as BLOB or CLOB data), you can retrieve the data on a column-by-column basis to avoid large memory usage

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 27

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
Database Management	**SPIRAL TEACHING**	**Spiral Teaching +Test**			

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 28

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
BASED ON WHOLE SYLLABUS 3 HOURS TEST-1					

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 29

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
BASED ON WHOLE SYLLABUS 3 HOURS TEST-2					

DURATION OF REMEDIAL /REVISION CLASS- 1 HOUR

DAY- 30

Unit name	Topic	Sub-topic	Marks of Topic as per CBSE Sample Paper	Content	Important questions
BASED ON WHOLE SYLLABUS 3 HOURS TEST-3					

KENDRIYA VIDYALAYA SANGATHAN RIGIONAL OFFICE RAIPUR
REMEDIAL /REVISION PLAN FOR UNDER ACHIEVERS
W.E.F. 01/04/2021 TO 30/04/2021

Day	Unit Name	Unit Theory Marks	Topic	Sub-Topic	Marks of Topic	Duration	Content	important Question
Day-1	Computational thinking and programming-2	**40M**	**PYTHON FUNDAMENTAL**	Keywords, Operators and Practice of CBSE sample papers questions based on this topic	4	1 hour	**For Detail content of theory please refer unit wise illustration**	MLL
Day-2	Computational thinking and programming-2		**CONTROL STATEMENTS**	Conditional statements only, Practice of CBSE sample papers based questions on this topic	6	1 hour		MLL
Day-3	Computational thinking and programming-2		**LIST, TUPLE ,DICTONARY**	Creation of a list, tuple & dictionary, Traversal of a list, tuple & dictionary Operations on a list ,tuple and & Dictionary .Practice of CBSE sample papers based questions on this topic	4	1 hour		MLL
Day-4	Computational thinking and programming-2		**FUNCTIONS**	Functions: scope, functions using libraries: mathematical	2	1 hour		MLL
Day-5	Computational thinking and programming-2		**FUNCTIONS**	User defined functions, parameter passing	3	1 hour		MLL
Day-6	Computational thinking and programming-2		**FUNCTIONS**	default parameters, positional parameters, return values. Practice of CBSE sample papers based questions on this topic	3	1 hour		MLL
Day-7	Computational thinking and programming-2		**FILE HANDLING**	Text File and Binary file- Basic operations on a text file, Appending data into a text file, standard input output and error streams in text file, Practice of CBSE sample papers based questions on this topic	8	1 hour		MLL
Day-8	Computational thinking and programming-2		**FILE HANDLING**	CSV File: Import csv module, functions, Using Python libraries: Import Python libraries. focus on questions of fill in the blanks on CSV files	5	1 hour		MLL
Day-9	Computational thinking and programming-2		**DATA STRUCTURE**	Lists as covered in Class XI, Definition and operation on List only introduction part.	2	1 hour		MLL
Day-10	Computational thinking and programming-2		**DATA STRUCTURE**	Stacks – Push, Pop using list ,definition concept and code of PUSH and POP	3	1 hour		MLL

Day	Unit Name	Theory Marks	Topic	Sub-Topic	Marks of Topic	Duration	Content	important Question
Day-11	Computer Networks	**10M**	EVALUTION OF NETWORKING AND DATA COMMUNICATION TERMINOLOGIES	ARPANET, Internet, Interspace, switching techniques .Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate. focus on only Full form and definition.	2	1 hour	**For Detail content of theory please refer unit wise illustration**	MLL
Day-12	Computer Networks		TRANSMISSION MEDIA AND NETWORK DEVICES	Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link. Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card. Focus on only definition and functioning part of each topic	2	1 hour		MLL
Day-13	Computer Networks		NETWORK TOPOLOGIES AND TYPES AND PROTOCOL	Bus, Star, Tree, PAN, LAN, WAN,MAN.TCP/IP, FTP), PPP, HTTP, SMTP, POP3, Focus on definition and Full form of each topic	2	1 hour		MLL
Day-14	Computer Networks		MOBILE TELECOMMUNICATION TECHNOLOGIES AND ELECTRONIC MAIL PROTOCOLS	Protocols for Chat and Video Conferencing: VoIP, Wi-Fi and WiMax . Focus on definition and Full form of each topic	2	1 hour		MLL
Day-15	Computer Networks		NETWORKS SECURITY CONCEPTS AND INTRODUCTION TO WEB SERVICES	Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https; India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking, WWW, (HTML), (XML); (HTTP); Domain Names; URL; Website, Web browser, Webservers ,webhosting	2	1 hour		MLL

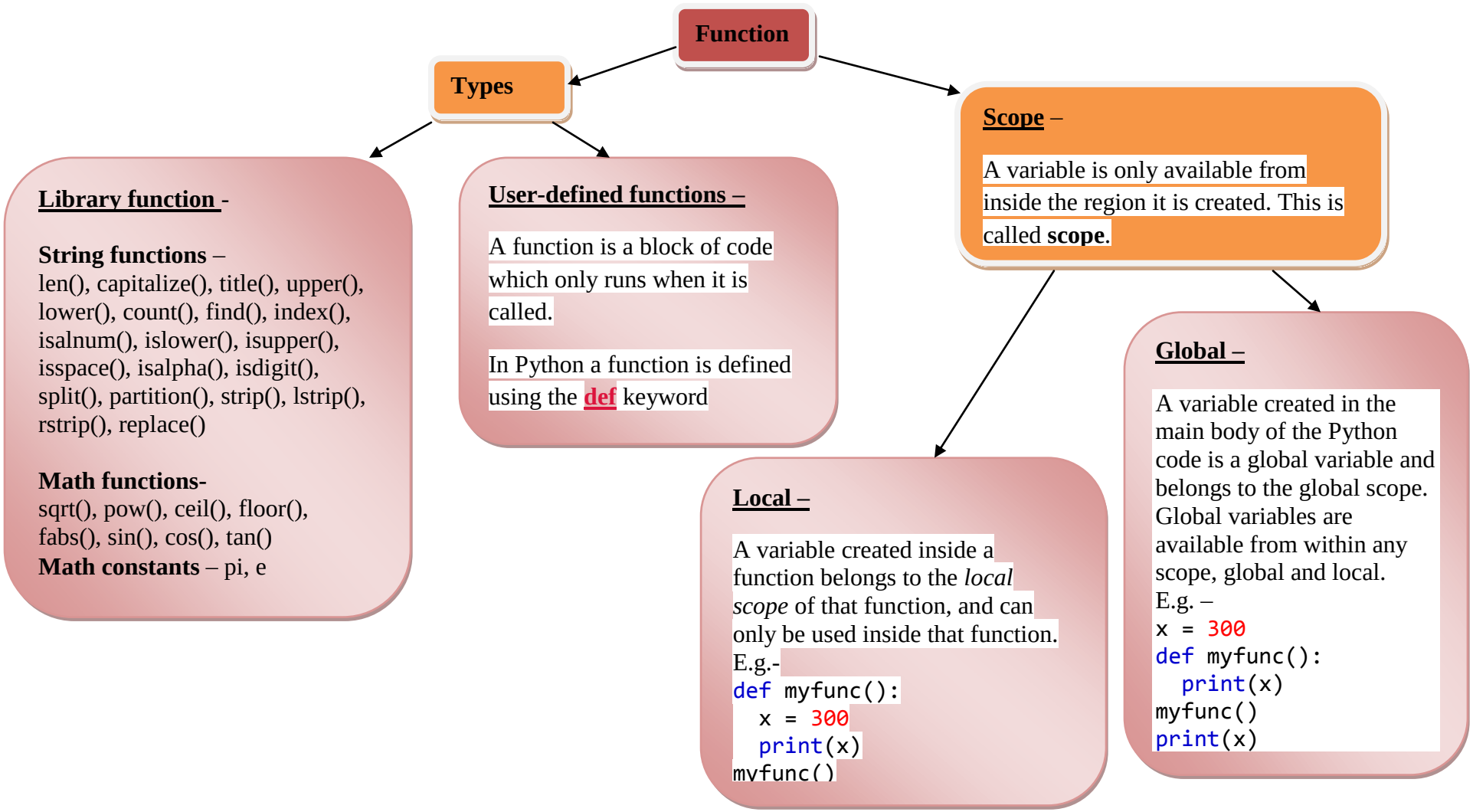
Day	Unit Name	Theory Marks	Topic	Sub-Topic	Marks of Topic as per CBSE Sample Paper	Duration	Content	important Question
Day-16	Database Management	**20M**	DATABASE CONCEPTS AND RELATIONAL MODELS	Introduction to database concepts and its need. Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key;	7	1 hour	**For Detail content of theory please refer unit wise illustration**	MLL
Day-17	Database Management		STRUCTURED QUERY LANGAUGE ,DATA TYPES AND SQL COMMANDS	Advantages of using SQL, Data Definition Language and Data Manipulation Language; number / decimal, character / varchar / varchar2, date;	3	1 hour		MLL
Day-18	Database Management		SQL COMMANDS	SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL /IS NULL,	2	1 hour		MLL
Day-19	Database Management		SQL COMMANDS	ORDER BY,GROUP BY, HAVING;	2	1 hour		MLL
Day-20	Database Management		SQL FUNCTIONS	SUM ( ), AVG ( ), COUNT ( ), MAX ( ) and MIN ( );	2	1 hour		MLL
Day-21	Database Management		JOINS	equi-join and natural join	2	1 hour		MLL
Day-22	Database Management		INTERFACE OF PYTHON WITH SQL DATABASE	Connecting SQL with Python, Creating Database connectivity Applications, Performing Insert, Update, Delete queries, Display data by using fetchone(), fetchall(), rowcount	2	1 hour		MLL
Day-23	**BASED ON WHOLE SYLLABUS 3 HOURS TEST-1**					**1 hour**		**MLL**
Day-24	**BASED ON WHOLE SYLLABUS 3 HOURS TEST-2**					**1 hour**		**MLL**
Day-25	**BASED ON WHOLE SYLLABUS 3 HOURS TEST-3**					**1 hour**		**MLL**

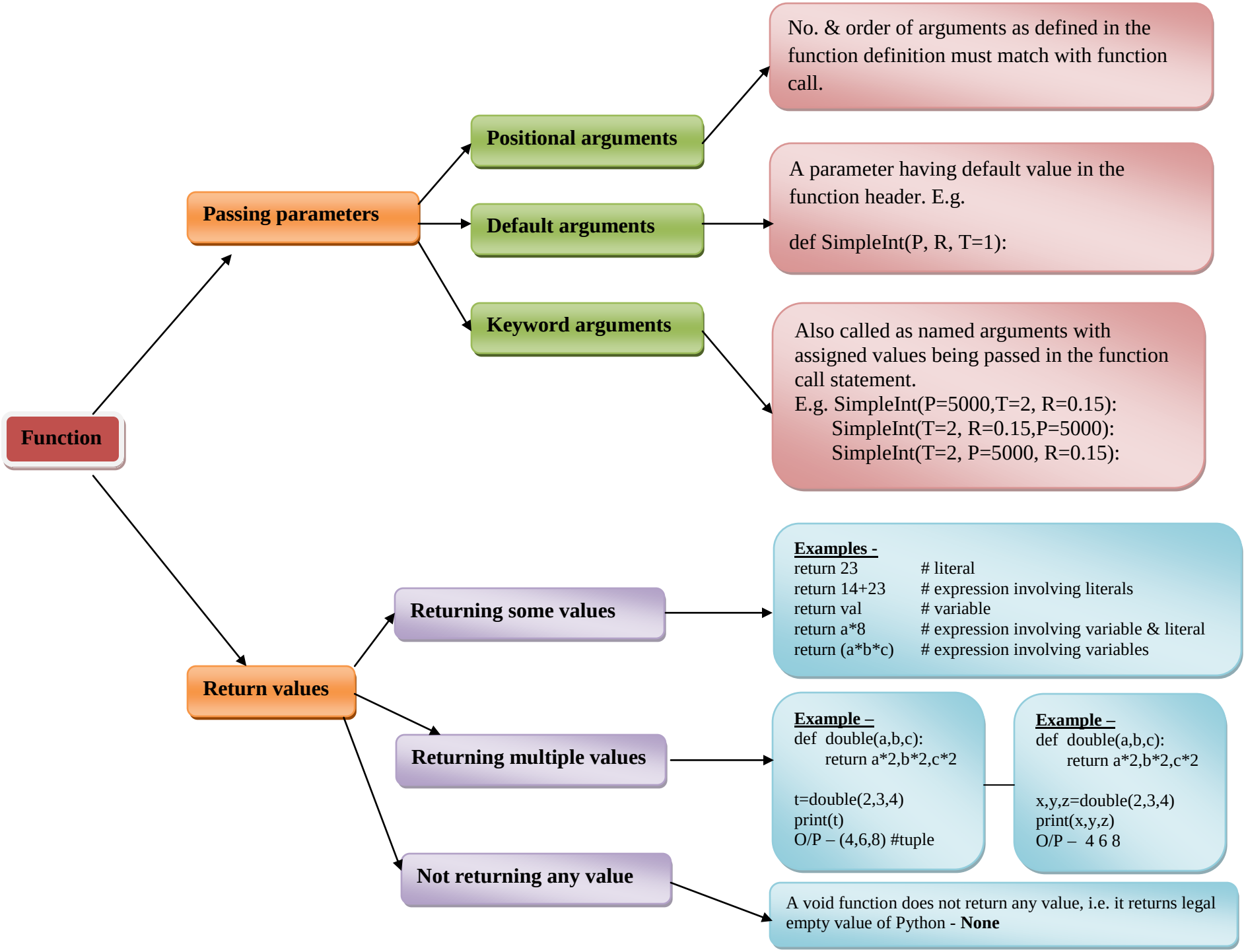
MIND MAPS

KENDRIYA VIDYALAYA SANGATHAN
RAIPUR REGION
MIND MAP / GRAPH/ ILLUSTRATION/ CHART
CLASS-XII, SUBJECT – COMPUTER SCIENCE (083)

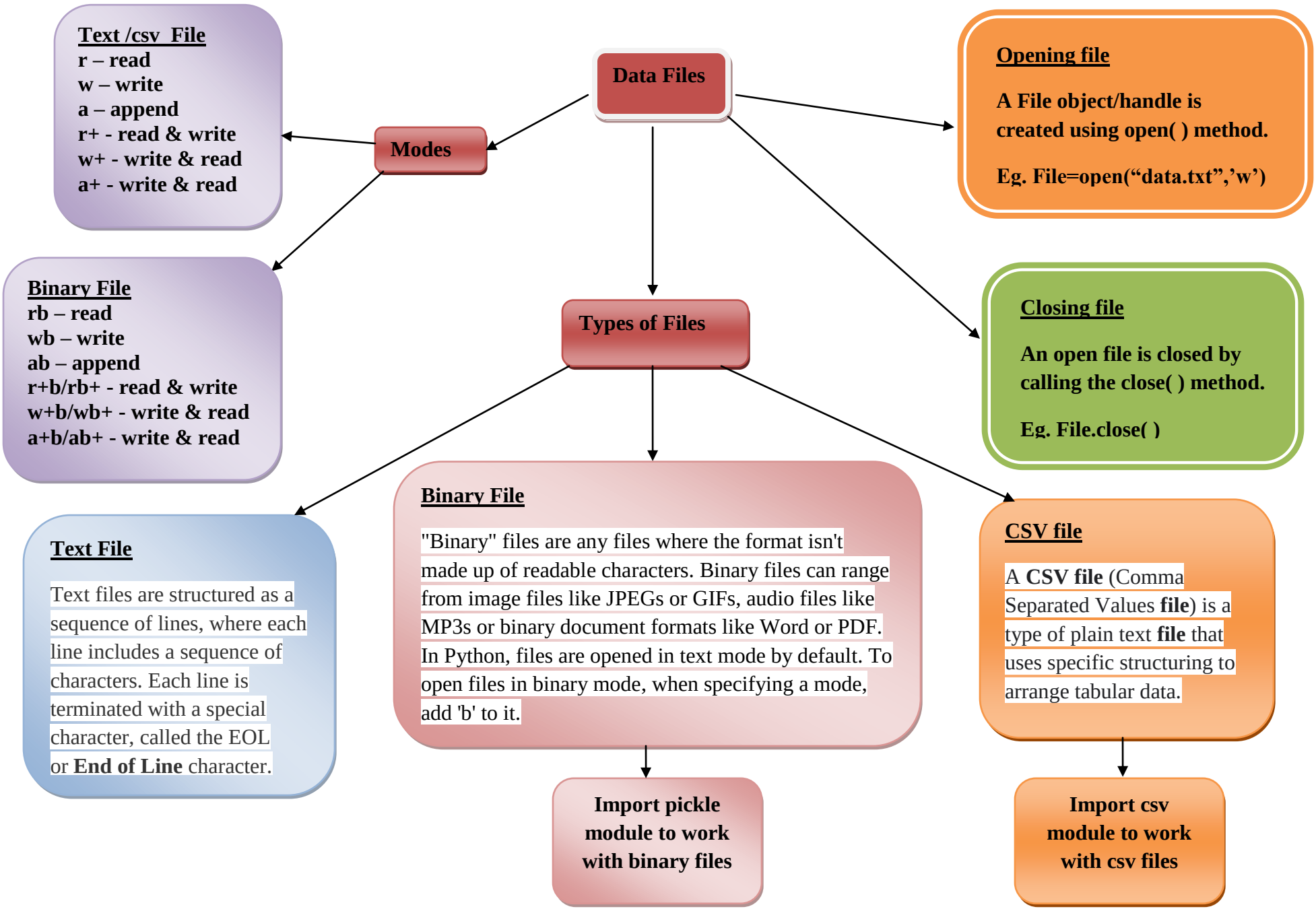
UNIT 1 - COMPUTATIONAL THINKING AND PROGRAMMING – 2

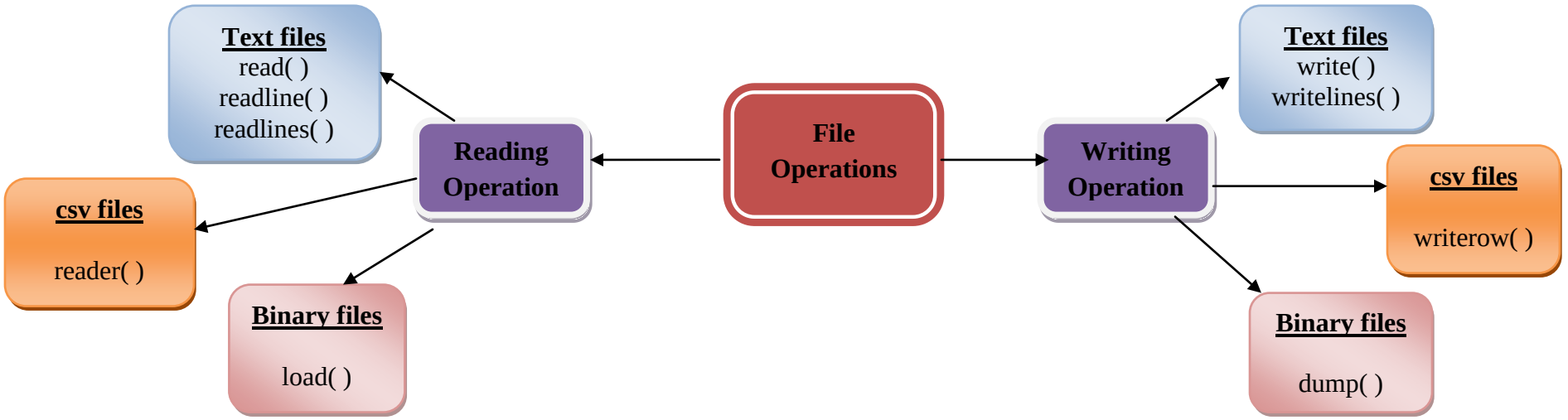
FUNCTION



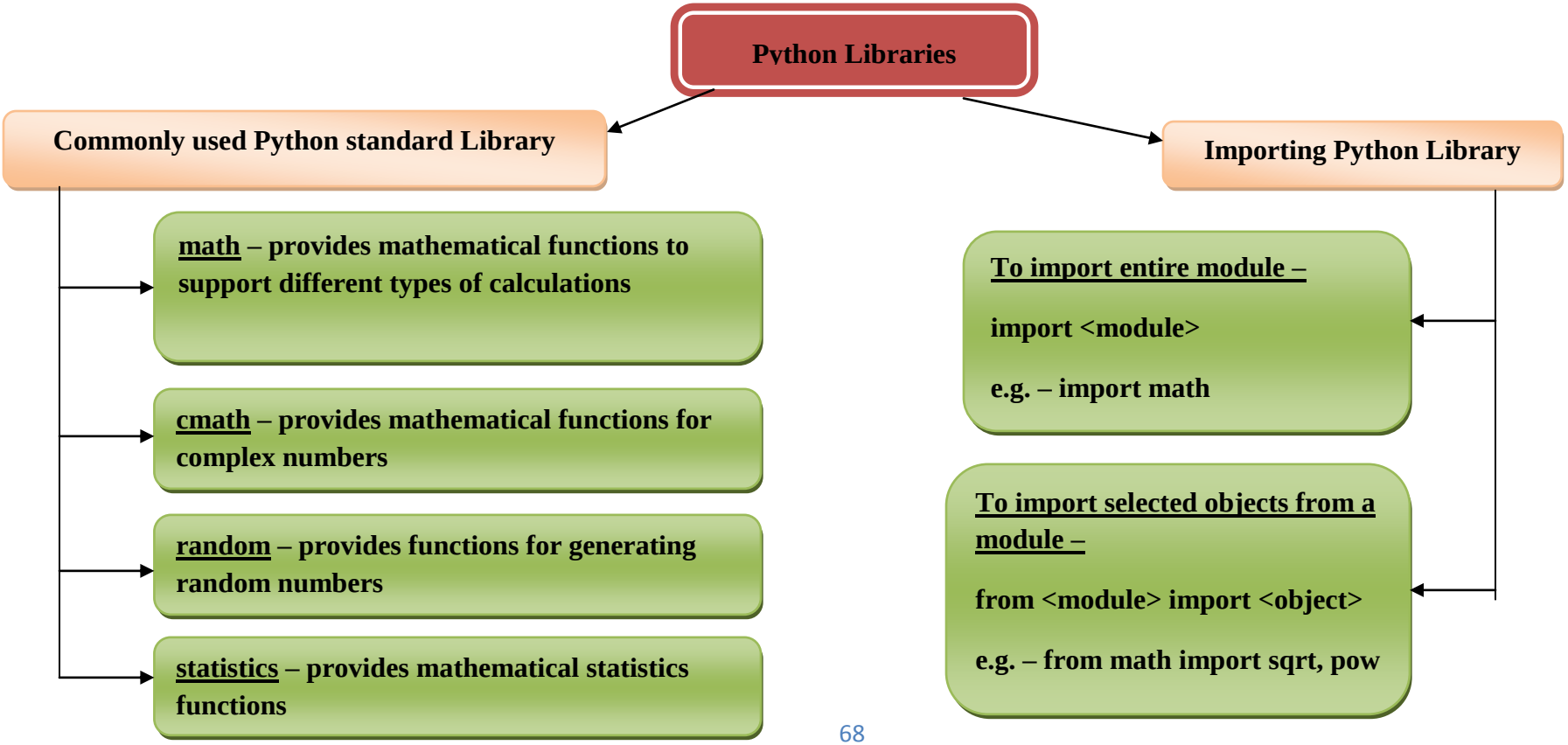

Function
Passing parameters
Positional arguments
No. & order of arguments as defined in the function definition must match with function call.
Default arguments
A parameter having default value in the function header. E.g.
def SimpleInt(P, R, T=1):
Keyword arguments
Also called as named arguments with assigned values being passed in the function call statement.
E.g. SimpleInt(P=5000,T=2, R=0.15):
SimpleInt(T=2, R=0.15,P=5000):
SimpleInt(T=2, P=5000, R=0.15):
Return values
Returning some values
Examples -
return 23 # literal
return 14+23 # expression involving literals
return val # variable
return a*8 # expression involving variable & literal
return (a*b*c) # expression involving variables
Returning multiple values
Example –
def double(a,b,c):
return a*2,b*2,c*2
t=double(2,3,4)
print(t)
O/P – (4,6,8) #tuple
Example –
def double(a,b,c):
return a*2,b*2,c*2
x,y,z=double(2,3,4)
print(x,y,z)
O/P – 4 6 8
Not returning any value
A void function does not return any value, i.e. it returns legal empty value of Python - None

FILE HANDLING

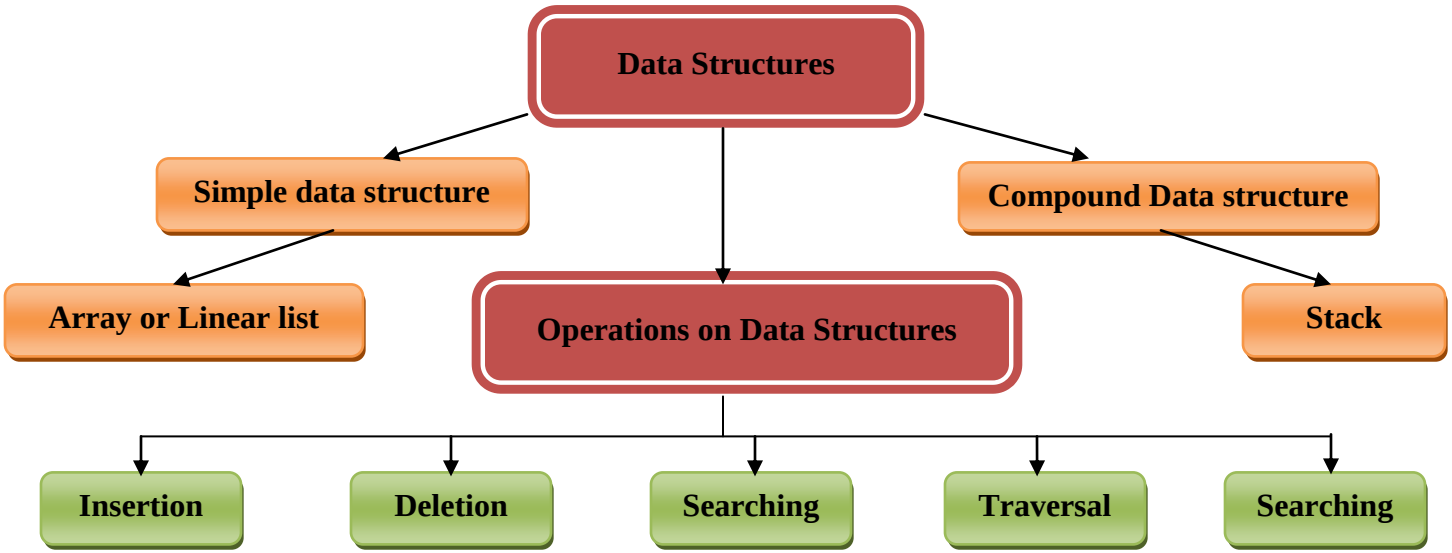


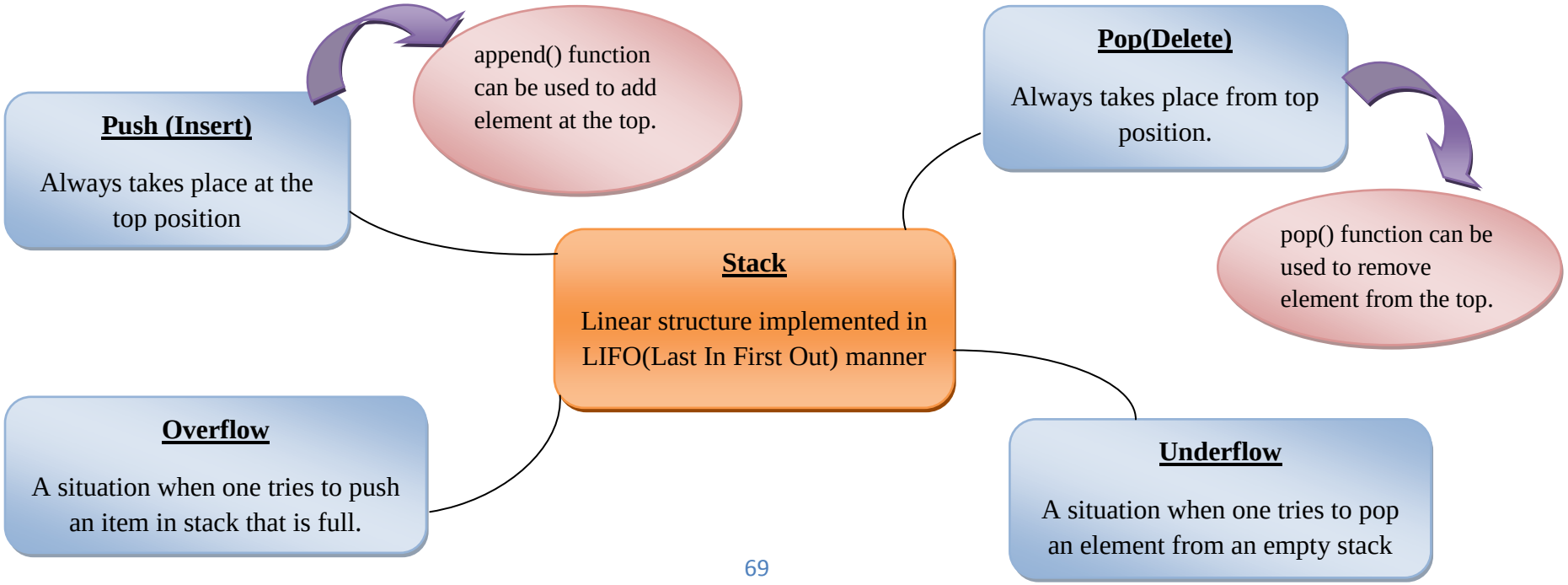


USING PYTHON LIBRARIES



DATA STRUCTURES





UNIT 2 – COMPUTER NETWORKS

EVOLUTION OF NETWORKING

INTERNET

The **Internet** is a global network of billions of computers and other electronic devices.

ARPANET

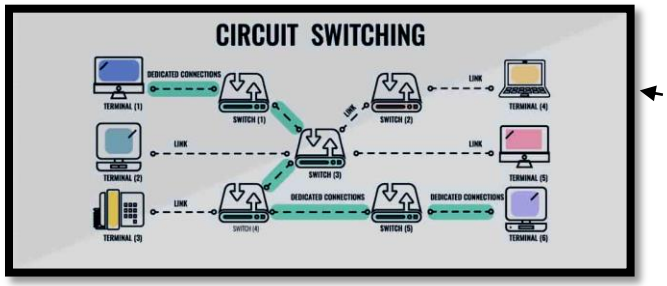
The **Advanced Research Projects Agency Network (ARPANET)**

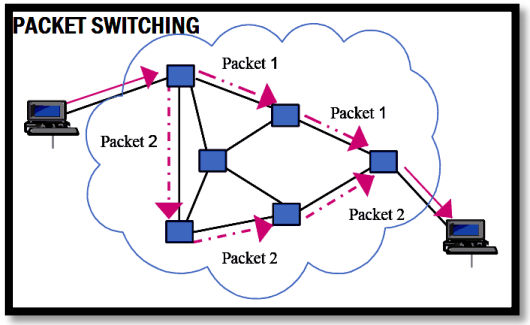
INTERSPACE

Interspace is a software that allows multiple users in a client-server environment to communicate with each other to send and receive data of various types such as data files, video, audio and textual data

EVOLUTION OF NETWORKING

SWITCHING TECHNIQUES





Differences Between Circuit & Packet Switching

Circuit-switching	Packet-Switching
Guaranteed capacity	No guarantees (best effort)
Capacity is wasted if data is bursty	More efficient
Before sending data establishes a path	Send data immediately
All data in a single flow follow one path	Different packets might follow different paths
No reordering; constant delay; no pkt drops	Packets may be reordered, delayed, or dropped

25

DATA COMMUNICATION TERMINOLOGIES

DATA COMMUNICATION TERMINOLOGIES

A **CHANNEL** is a communication medium, the path that data takes from source to destination

BANDWIDTH is the maximum amount of data transmitted over an internet connection in a given amount of time.

- Hz - Hertz
- KHz – Kilo Hertz
- MHz –Mega Hertz

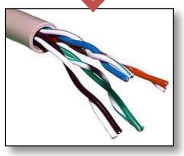
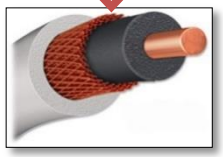
The **DATA TRANSFER RATE** is commonly used to measure how fast **data** is **transferred** from one location to another.

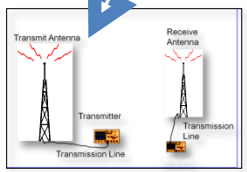
- bps – bits per sec
- Kbps – Kilobit per sec
- Mbps – Megabit per sec
- Gbps – Gigabit per sec
- Tbps – Terabit per sec

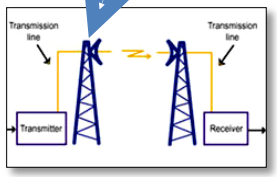
TRANSMISSION MEDIA

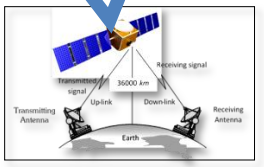
Transmission Media

- **Guided**
  - **Twisted Pair Cable**
  - **Co-axial Cable**
  - **Optical Fiber**
- **Unguided**
  - **Infrared**
  - **Radiowaves**
  - **Microwaves**
  - **Satellite**







NETWORK DEVICES

Network Devices

MODEM – (modulator-demodulator), a device that makes it possible for computers to communicate with one another without being directly connected to each other.

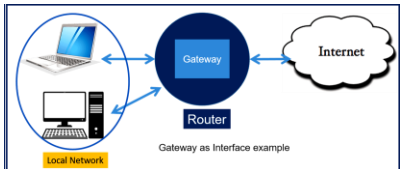
RJ45 Connector – A registered jack (RJ) is a standardized physical network interface for connecting telecommunications or data equipment.

ETHERNET CARD – An **Ethernet card** is the communications hub for your computer; it connects to a **network** using a **network** cable.

ROUTER – The router is a physical or virtual internetworking device that is designed to receive, analyze, and forward data packets between computer networks.

SWITCH – A **switch** is a device in a computer **network** that connects other devices together.

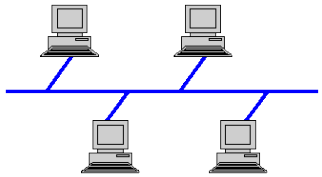
GATEWAY – A **gateway** is a **network** node that forms a passage between two **networks** operating with different transmission protocols.



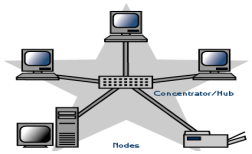
WiFi CARD – It receives the **wireless** signal and communicates with the **wireless** network, enabling you to access the Web with your laptop.

NETWORK TOPOLOGIES

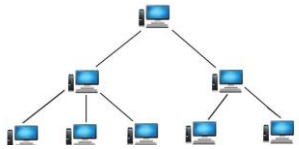
BUS – A **bus topology** is a **topology** for a Local Area **Network** (LAN) in which all the nodes are connected to a single cable



STAR – A **star topology** is a **topology** for a Local Area **Network** (LAN) in which all nodes are individually connected to a central connection point, like a hub or a switch.



TREE – A **tree topology** is a special type of structure where many connected elements are arranged like the branches of a **tree**

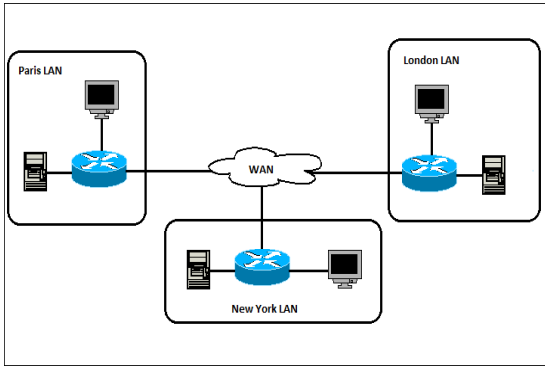


NETWORK TOPOLOGIES

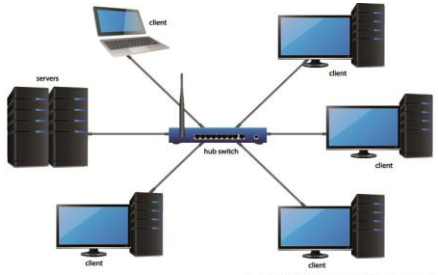
NETWORK TYPES

PAN – Personal Area Network

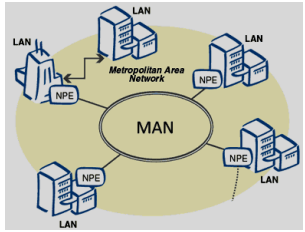
WAN – Wide Area Network



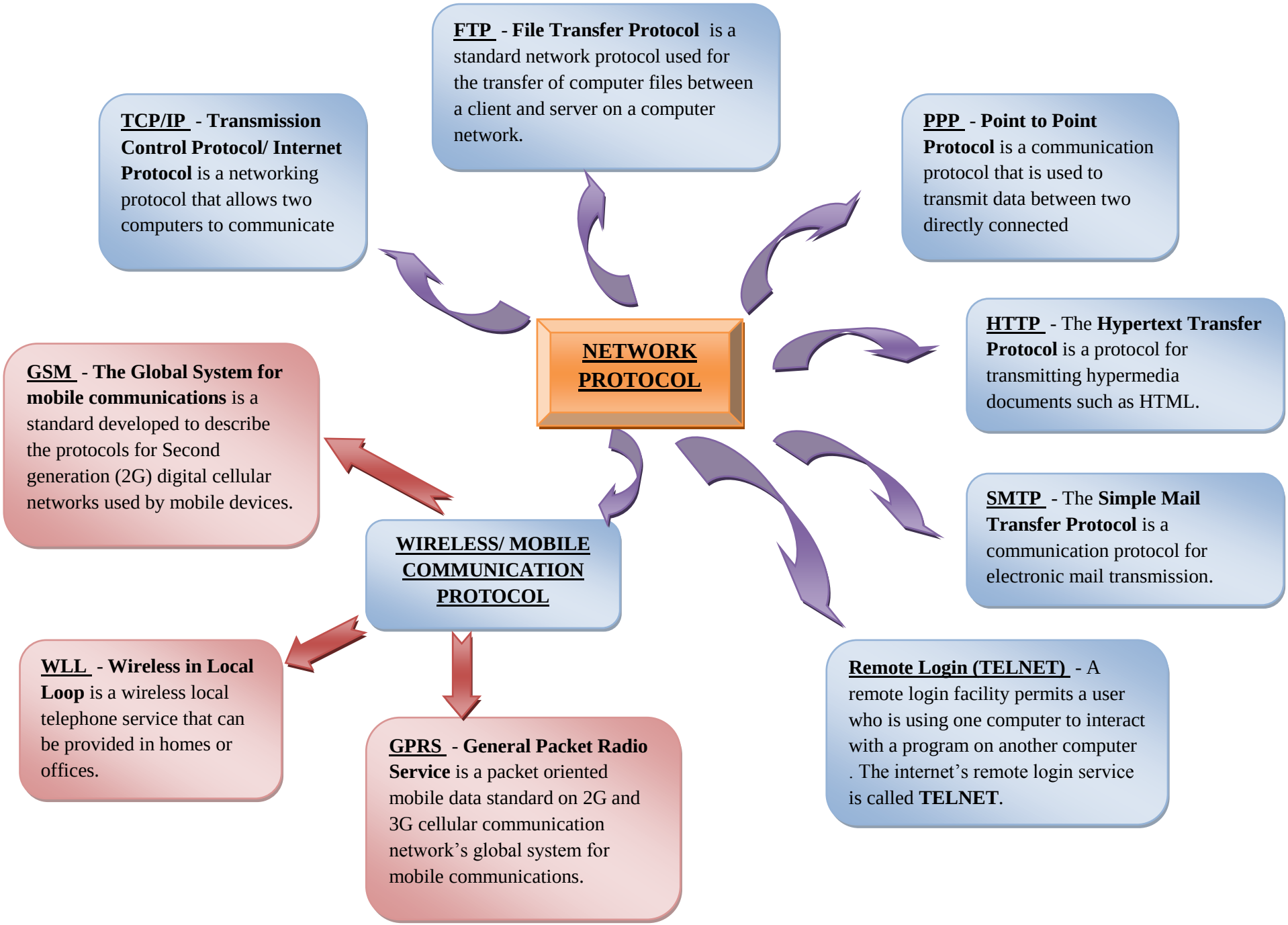
LAN – Local Area Network



MAN – Metropolitan Area Network



NETWORK PROTOCOL



MOBILE TELECOMMUNICATION TECHNOLOGIES

COMPARISON BETWEEN 1G, 2G, 3G, 4G AND 5G

Technology / Features	*1G*	*2/2.5G*	*3G*	*4G*	*5G*
Start/ Deployment	1970/ 1984	1980/ 1999	1990/ 2002	2000/ 2010	2010/ 2015
Data Bandwidth	2 kbps	14.4-64 kbps	2 Mbps	200 Mbps to 1 Gbps for low mobility	1 Gbps and higher
Standards	AMPS	2G: TDMA, CDMA, GSM 2.5G: GPRS, EDGE,1xRTT	WCDMA, CDMA-2000	Single unified standard	Single unified standard
Technology	Analog cellular technology	Digital cellular technology	Broad bandwidth CDMA, IP technology	Unified IP and seamless combination of broadband, LAN/WAN/	Unified IP and seamless combination of broadband,

VoIP – Voice Over Internet Protocol

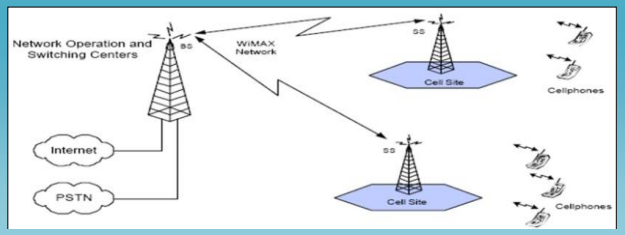
It is a technology that allows you to make voice calls using a broadband internet connection instead of a regular phone line.

WiFi – Wireless Fidelity

Wifi is a universal wireless networking technology that utilizes radio frequencies to transfer data.

WiMax –

WiMax stand for **Worldwide Interoperability for Microwave Access (AXess)**, and it is a technology for point to multipoint wireless networking. It provides high speed data over a wide area.



NETWORK SECURITY CONCEPTS

VIRUS

- A **computer virus** is malware attached to another program (such as a document), which can replicate and spread after an initial execution on a target system where human interaction is required.

WORMS

- A **computer worm** is a standalone malware computer program that replicates itself in order to spread to other computers.

TROJAN HORSE

- A **Trojan horse**, or **Trojan**, is a type of malicious code or software that looks legitimate but can take control of your computer. A **Trojan** is designed to damage, disrupt, steal, or in general inflict some other harmful action on your data or network. A **Trojan** acts like a bona fide application or file to trick you

SPAM

- **Spam** is digital junk mail: unsolicited communications sent in bulk over the internet or through any electronic messaging system

COOKIES

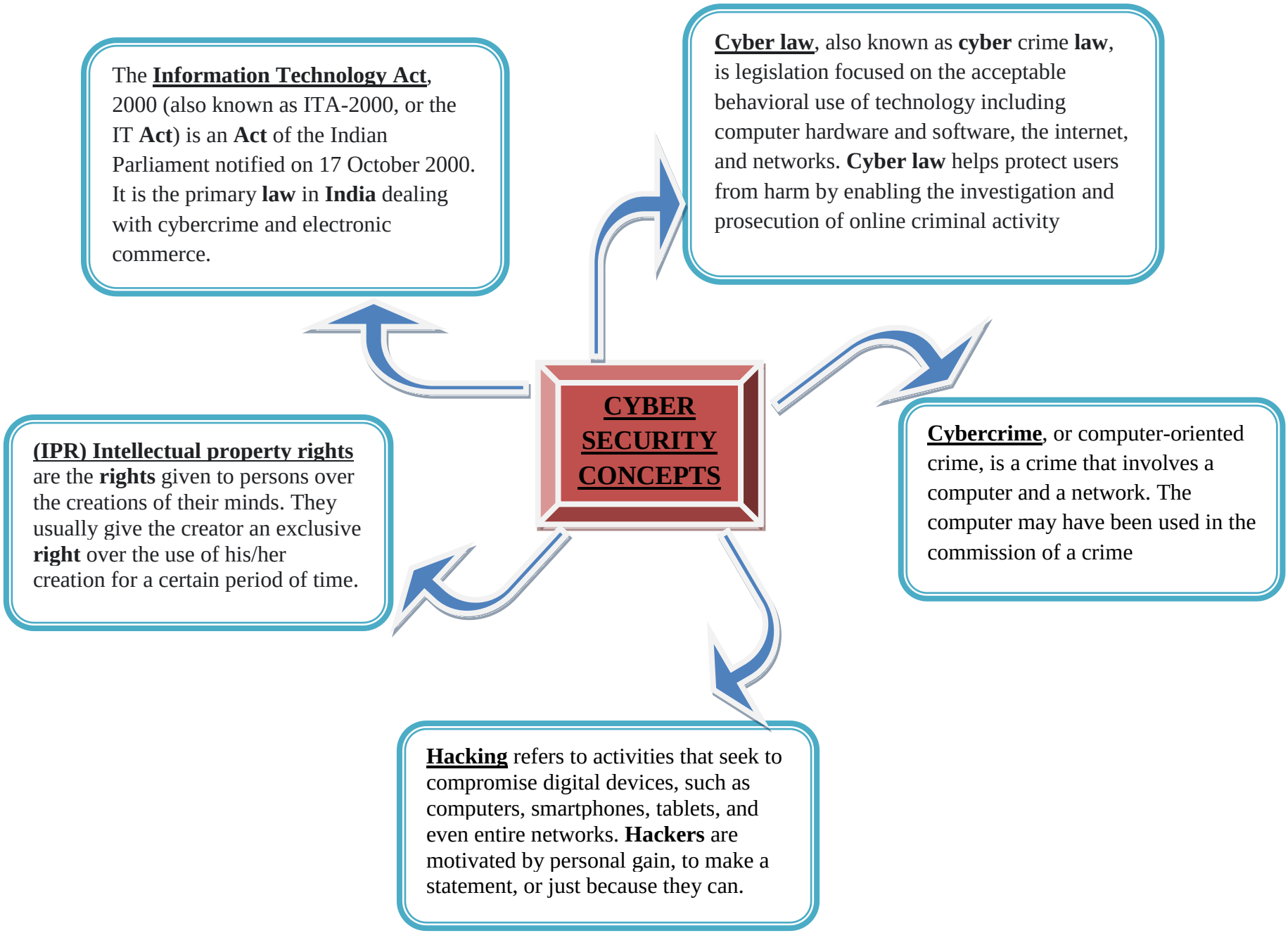
- **Cookies** are text files with small pieces of data — like a username and password — that are used to identify your **computer** as you use a **computer** network. Specific **cookies** known as HTTP **cookies** are used to identify specific users and improve your web browsing experience.

FIREWALL

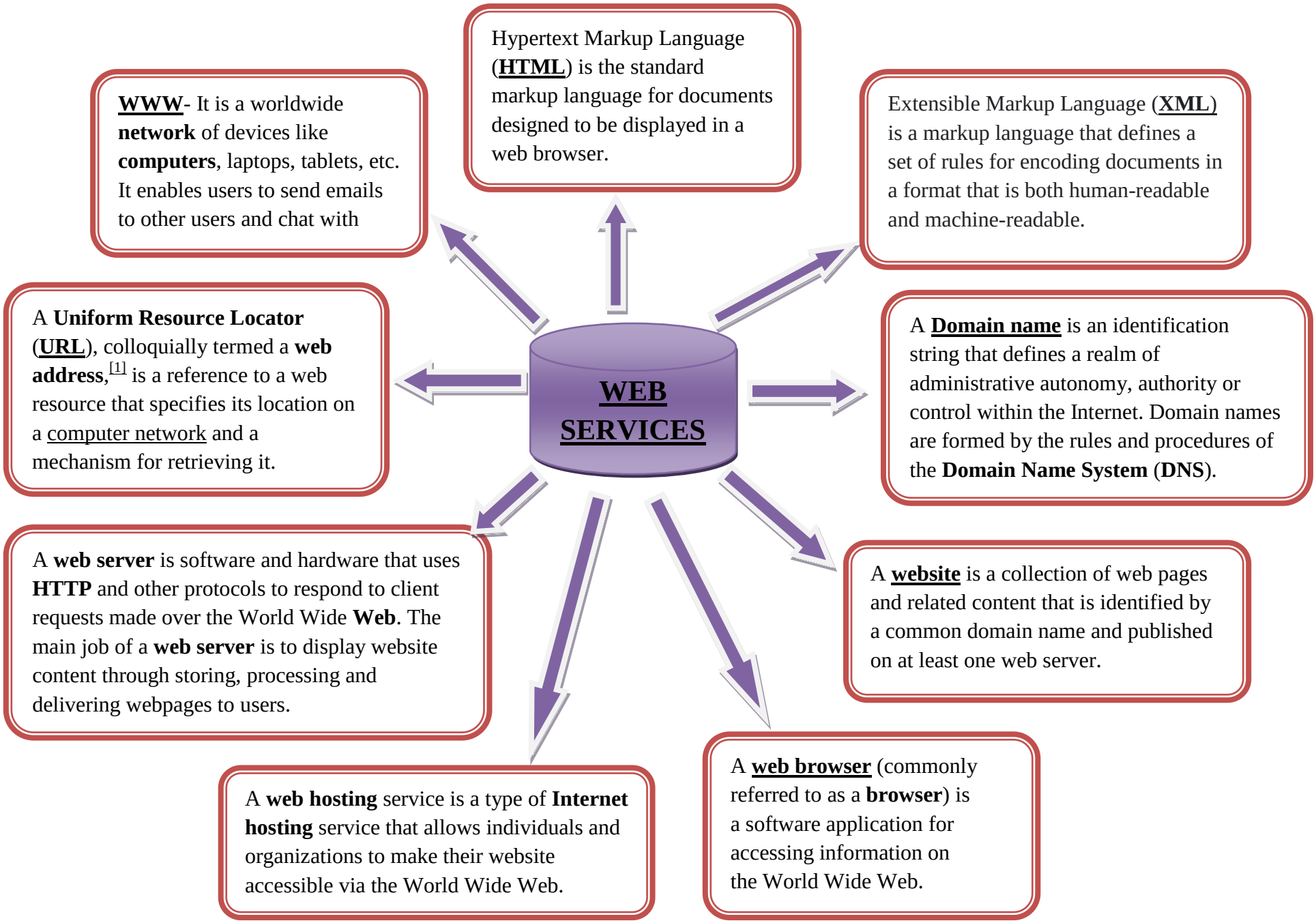
- A **firewall** is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules. A **firewall** typically establishes a barrier between a trusted network and an untrusted network, such as the Internet.

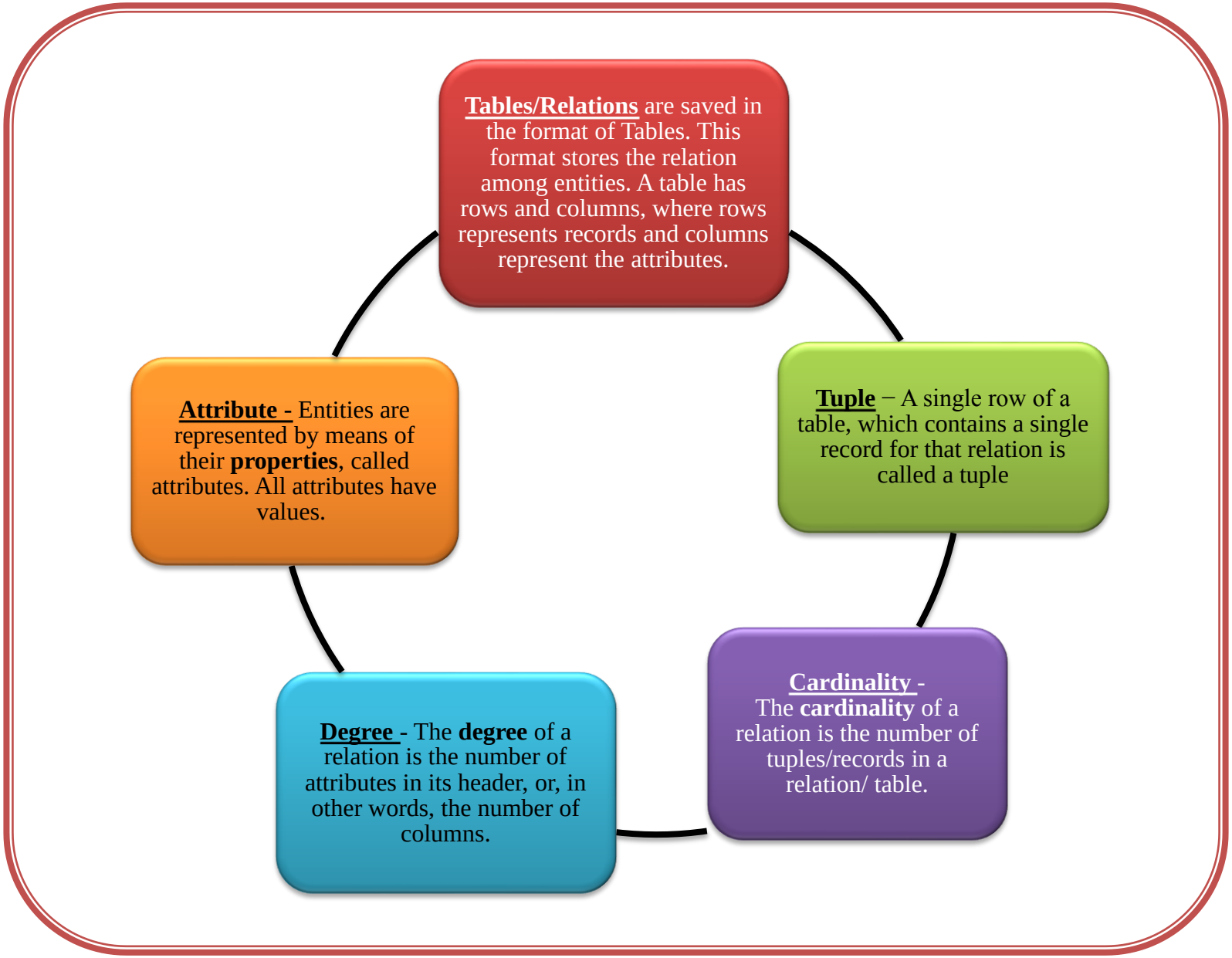
HTTPS

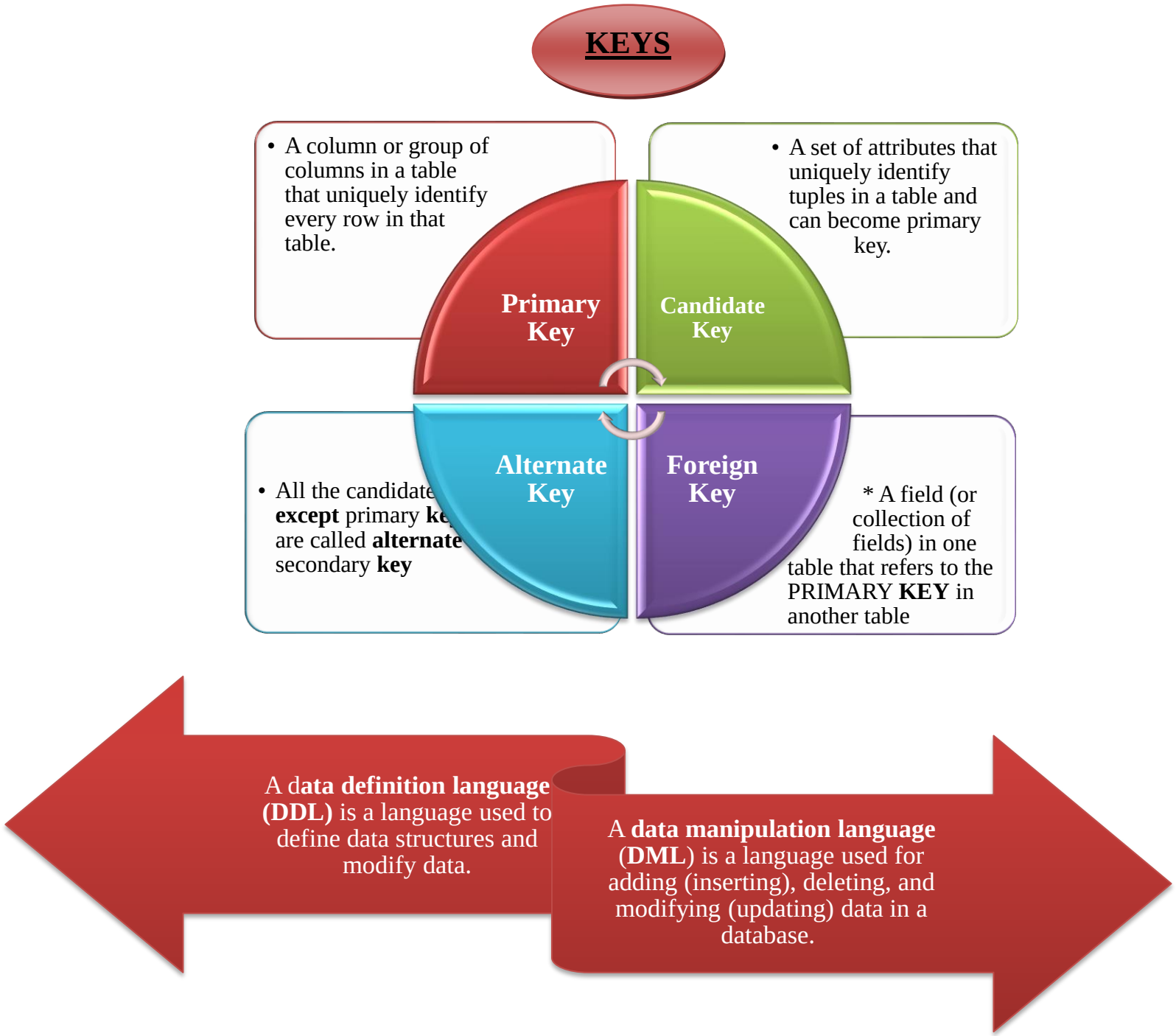
- Hypertext Transfer Protocol Secure (**HTTPS**) is an extension of the Hypertext Transfer Protocol (HTTP). It is used for secure communication over a computer network, and is widely used on the Internet.

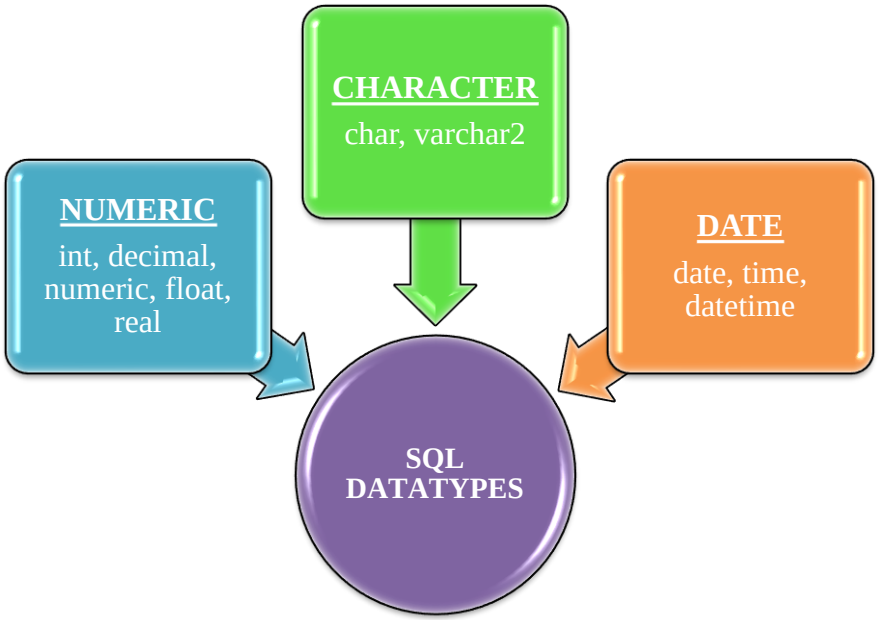

CYBER SECURITY CONCEPTS
The Information Technology Act, 2000 (also known as ITA-2000, or the IT Act) is an Act of the Indian Parliament notified on 17 October 2000. It is the primary law in India dealing with cybercrime and electronic commerce.
Cyber law, also known as cyber crime law, is legislation focused on the acceptable behavioral use of technology including computer hardware and software, the internet, and networks. Cyber law helps protect users from harm by enabling the investigation and prosecution of online criminal activity
(IPR) Intellectual property rights are the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time.
Cybercrime, or computer-oriented crime, is a crime that involves a computer and a network. The computer may have been used in the commission of a crime
Hacking refers to activities that seek to compromise digital devices, such as computers, smartphones, tablets, and even entire networks. Hackers are motivated by personal gain, to make a statement, or just because they can.

INTRODUCTION TO WEB SERVICES

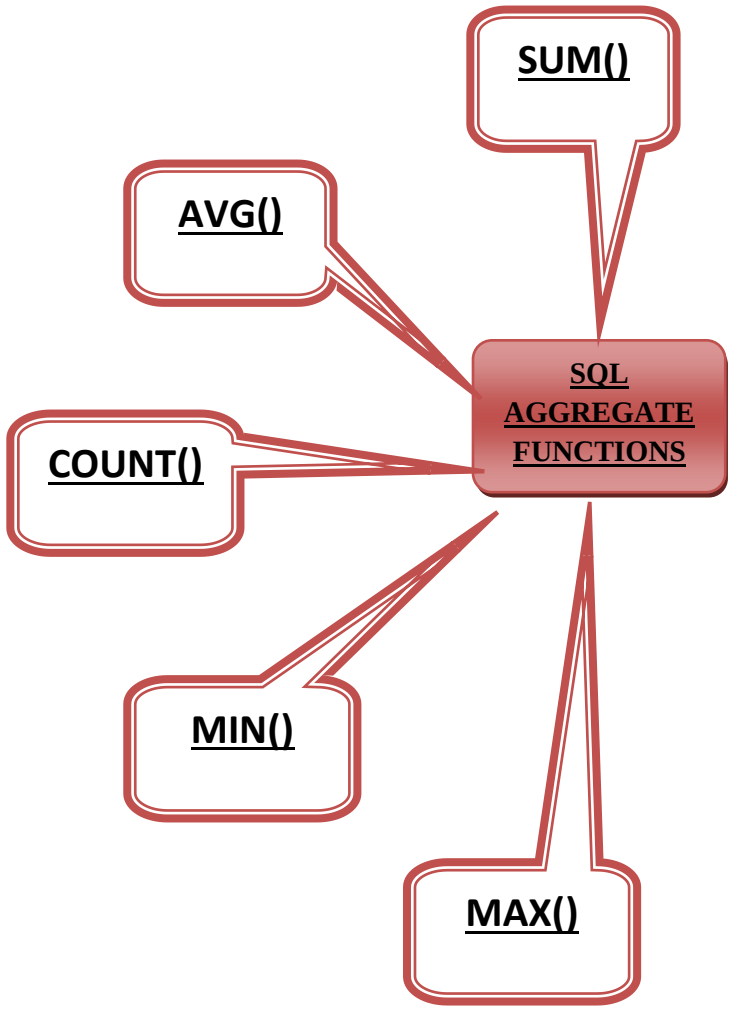


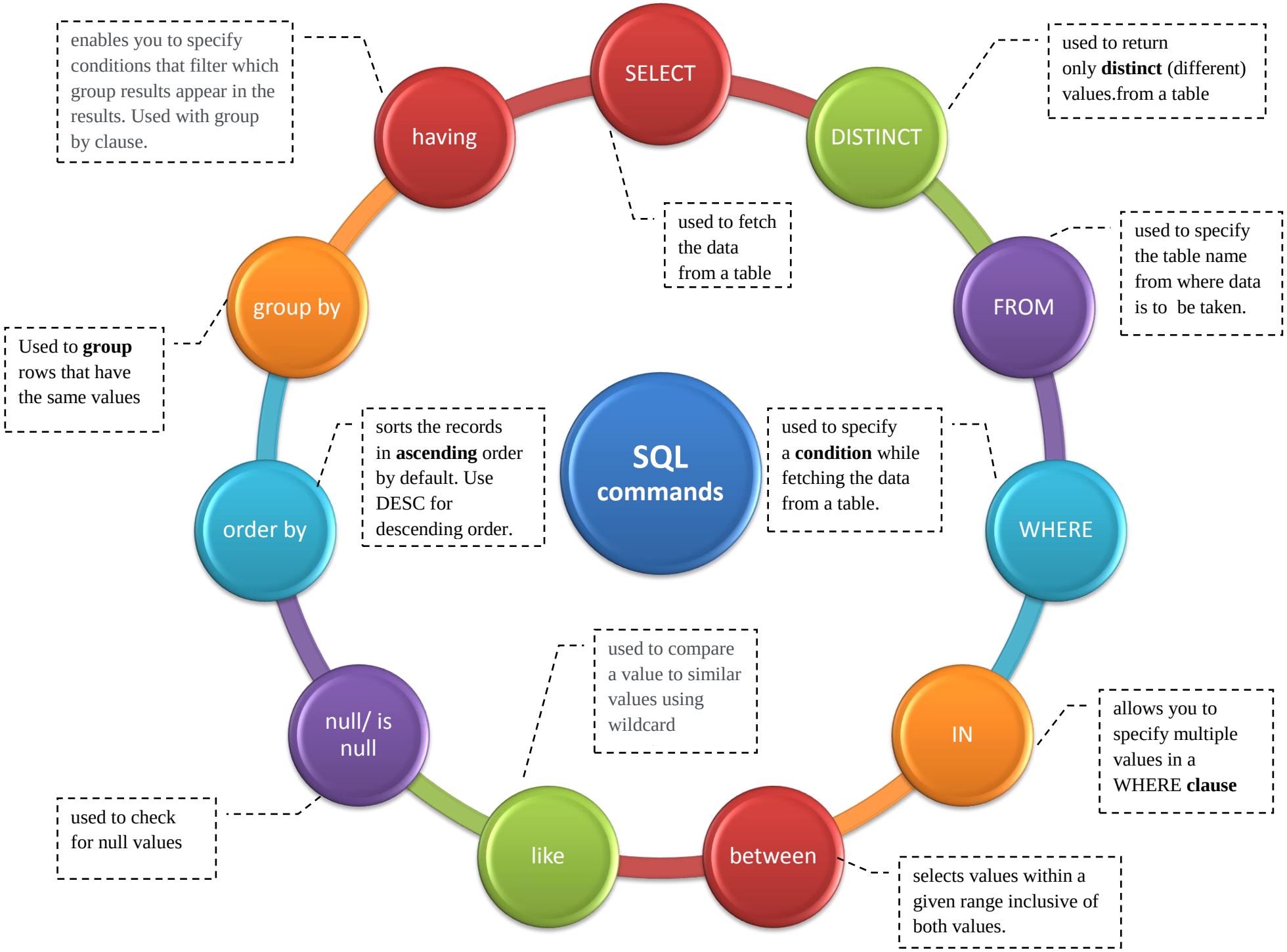

Tables/Relations are saved in the format of Tables. This format stores the relation among entities. A table has rows and columns, where rows represents records and columns represent the attributes.
Tuple − A single row of a table, which contains a single record for that relation is called a tuple
Cardinality - The cardinality of a relation is the number of tuples/records in a relation/ table.
Degree - The degree of a relation is the number of attributes in its header, or, in other words, the number of columns.
Attribute - Entities are represented by means of their properties, called attributes. All attributes have values.

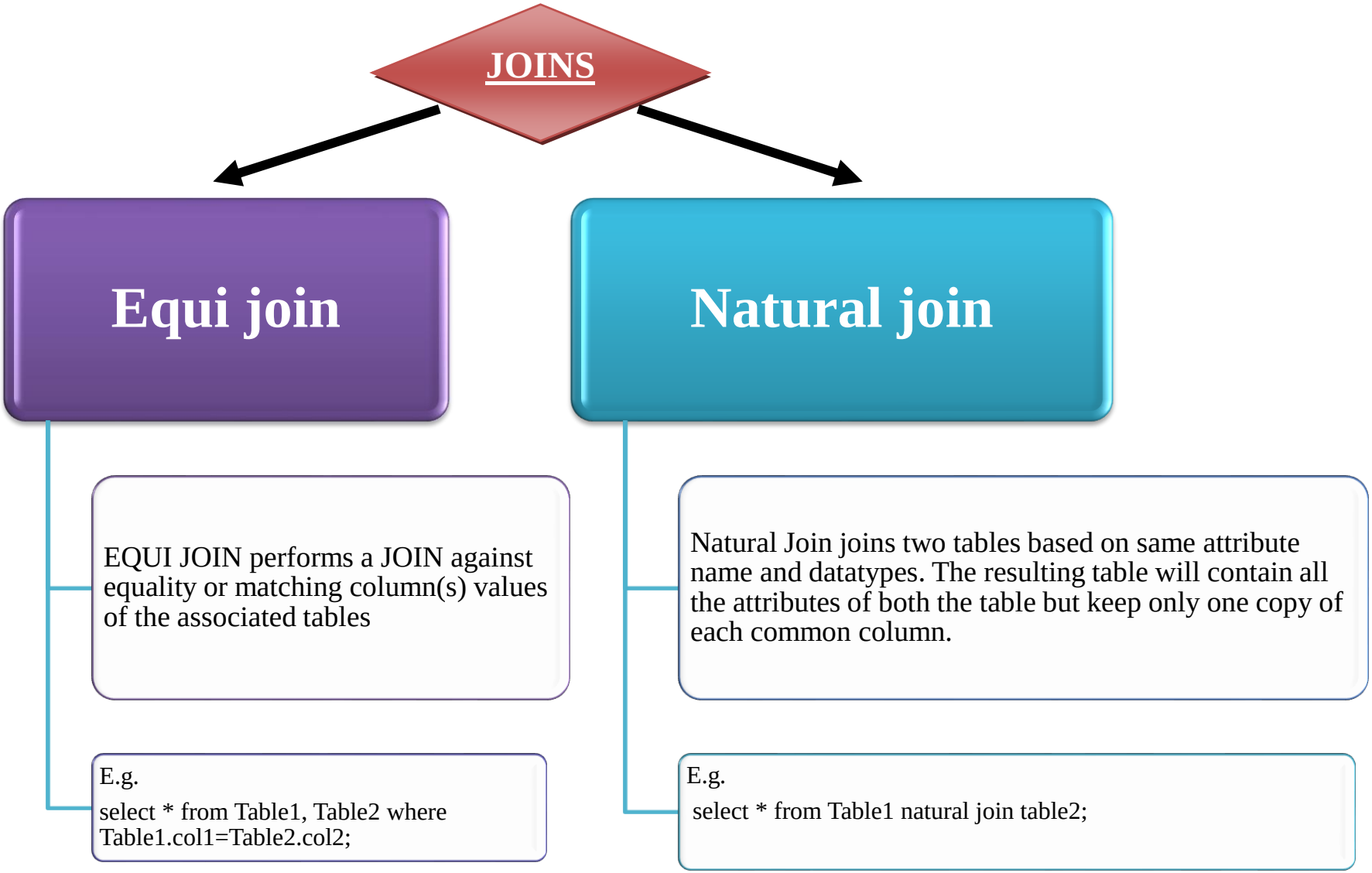

KEYS
• A column or group of columns in a table that uniquely identify every row in that table.
Primary Key
• A set of attributes that uniquely identify tuples in a table and can become primary key.
Candidate Key
• All the candidate
except primary ke
are called alternate
secondary key
Alternate Key
Foreign Key
* A field (or collection of fields) in one table that refers to the PRIMARY KEY in another table
A data definition language (DDL) is a language used to define data structures and modify data.
A data manipulation language (DML) is a language used for adding (inserting), deleting, and modifying (updating) data in a database.



DDL	DML
It is Data Definition Language	It is Data Manipulation Language
These are used to define data structure	It is used to manipulate the existing databases.
It is used to define database structure or schema	It is used for managing data within schema objects
Commands are: CREATE, ALTER, DROP, TRUNCATE, RENAME	Commands are: SELECT, INSERT, DELETE, UPDATE, MERGE, CALL
It works on whole table	It works on one or more rows
It do not have a where clause to filter	It have where clause to filter records
Changes done by DDL commands cannot be rolled back	Changes can be rolled back
It is not further classified.	It is further classified as procedural and non procedural DML's
Example:- drop table tablename;	Select * from employee




SQL commands
SELECT
used to fetch the data from a table
DISTINCT
used to return only **distinct** (different) values.from a table
FROM
used to specify the table name from where data is to be taken.
WHERE
used to specify a **condition** while fetching the data from a table.
IN
allows you to specify multiple values in a WHERE **clause**
between
selects values within a given range inclusive of both values.
like
used to compare a value to similar values using wildcard
null/ is null
used to check for null values
order by
sorts the records in **ascending** order by default. Use DESC for descending order.
group by
Used to **group** rows that have the same values
having
enables you to specify conditions that filter which group results appear in the results. Used with group by clause.


JOINS
Equi join
Natural join
EQUI JOIN performs a JOIN against equality or matching column(s) values of the associated tables
E.g.
select * from Table1, Table2 where Table1.col1=Table2.col2;
Natural Join joins two tables based on same attribute name and datatypes. The resulting table will contain all the attributes of both the table but keep only one copy of each common column.
E.g.
select * from Table1 natural join table2;

----------o-X-o----------

VSA/SA/LA TYPE QUESTIONS WITH ANSWERS

1. QUESTIONS - GENERAL THEORY

1. Differentiate between the round( ) and floor( ) functions with the help of suitable example.
2. Which string method is used to implement the following:
    a. To count the number of characters in the string
    b. To change the first character of the string in capital letter
    c. To change lowercase to uppercase letter
    d. To check whether the given character is letter or a number
3. What are default arguments?
4. What is the difference between actual and formal parameters?
6. What is the difference between built-in functions and modules?
7. What is the difference between local variable and global variable?
8. What are the advantages of writing functions with keyword arguments?
9. What do you mean by scope of variables?
10. Which of the following is valid arithmetic operator in Python:
    (i)// (ii)? (iii)< (iv)and
11. Write the type of tokens from the following:
    (i) if (ii) roll_no
12. Which of the following are valid operators in Python:
    (i) ** (ii) */ (iii) like (iv) ||
    (v) is (vi) ^ (vii) between (viii) in
13. Which of the following can be used as valid variable identifier(s) in Python?
    (i) 4thSum (ii) Total
    (iii) Number# (iv) _Data
14. Rearrange the following operators in Highest to Lowest Priority.
    % , or, ==, not, =
15. Find the invalid identifier from the followings:
    a) File_name, b) sl1, c) False, d) num34
16. Which of the following is not a valid identifier name in Python? Justify reason for it not being a valid name.
    a) 5Total b) _Radius c) pie d)While
17. Which of the following is not a valid identifier in Python?
    a) KV2 b) _main c) Hello_Dear1 d) 7 Sisters
18. Which of the following are valid operators in Python:
    (i) * (ii) between (iii) like (iv) ||
19. Which of the following are valid operator in Python:
    (i) */ (ii) is (iii) ^ (iv) like
20. How would you write x^y-4x^9 in python
21. Name the Python Library modules which need to be imported to invoke the following functions: (i) ceil( ) (ii) randrange( )
22. What will be the output of the following expression: print(24//6%3, 24//4//2, 20%3%2)
23. Evaluate following expressions:
    a) 18 % 4 ** 3 // 7 + 9
    b) 2 > 5 or 5 == 5 and not 12 <= 9
    c) 16%15//16
    d) 51+4-3**3//19-3
    e) 17<19 or 30>18 and not 19==0
24. Expand the following terms:
    a. HTML b. ITA c. SIP d. GSM
    e. PPP f. PAN g. POP3 h. FTP

SOLUTIONS: GENERAL THEORY

Ans1. The round( ) function is used to convert a fractional number into whole as the nearest next whereas the floor( ) is used to convert to the nearest lower whole number.
E.g. round(5.8) = 6 and floor(5.8)= 5

Ans2. a. len(str) b. str.capitalize( ) c. str.upper( ) d. ch.isalnum( )

Ans3. Default arguments are used in function definition, if the function is called without the argument, the default argument gets its default value.

Ans 4. Actual parameters are those parameters which are used in function call statement and formal parameters are those parameters which are used in function header (definition).

```
e.g.  def sum(a,b):                 # a and b are formal parameters
          return a+b
      x, y = 5, 10
      res = sum(x,y)                # x and y are actual parameters
```

Ans 6: Built in functions can be used directly in a program in python, but in order to use modules, we have to use import statement to use them.

Ans 7.

Sno.	LOCAL VARIABLE	GLOBAL VARIABLE
1	It is a variable which is declared within a function or within a block.	It is a variable which is declared outside all the functions.
2	It is accessible only within a function/ block in which it is declared.	It is accessible throughtout the program.

For example,

```
def change():
    n=10                # n is a local variable
x=5                     # x is a global variable
print( x)
```

Ans 8. i) using the function is easier as we do not need to remember the order of the arguments.
ii) we can specify values of only those parameters which we want to give, as other parameters have default argument values

Ans9. Scope of variables refers to the part of the program where it is visible, i.e, the area where you can use it

Ans10. (i)

Ans 11. i) Keyword ii) identifier
Ans 12. i) iv) vi) viii)
Ans 13. ii) and iv)
Ans 14. %, ==, not, or, =
Ans 15. c)False
Ans 16. a) 5Total Reason: An identifier cannot start with a digit
Ans 17. d) 7 Sisters
Ans 18. (iv) ||
Ans 19. Valid operators are : (ii) is (iii) ^
Ans 20. Math.pow(x,y) – 4 * math.pow(x,9)
Ans 21. i) math (ii) random
Ans 22. (1,3,0)
Ans. 23. a) 11 b) True c) 0 d) 51 e) True
Ans 24.

a. PHP-Hypertext Text markup Language
b. ITA-Information Technology Act
c. SIP- Session Initiation Protocol
d. GSM-Global system for mobile communication
e. PPP: Point to Point Protocol
f. PAN; Personal Area Network
g. POP3: Post Office Protocol version 3
h. FTP: File Transfer Protocol

2. QUESTIONS - ERROR FINDING

Q1. Find error in the following code(if any) and correct code by rewriting code and underline the correction;-

```
x= int("Enter value of x:")
for y in range [0,10]:
   if x=y
        print( x + y)
   else:
        print( x-y)
```

Q2. Rewrite the following program after finding and correcting syntactical errors and underlining it.

```
a, b = 0
if (a = b)
a +b = c
print(c)
```

Q3. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
250 = Number
WHILE Number<=1000:
    if Number=>750
        print (Number)
        Number=Number+100
    else
        print( Number*2)
Number=Number+50
```

Q4. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
Val = int(rawinput("Value:"))
Adder = 0
for C in range(1,Val,3)
        Adder+=C
        if C%2=0:
                Print (C*10)
        Else:
                print (C*)
print (Adder)
```

Q5. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
25=Val
for I in the range(0,Val)
        if I%2==0:
                print( I+1):
        Else:
                print [I-1]
```

Q6. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
STRING=""WELCOME
NOTE""
for S in range[0,8]:
        print (STRING(S))
```

Q7. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
a=int{input("ENTER FIRST NUMBER")}
b=int(input("ENTER SECOND NUMBER"))
c=int(input("ENTER THIRD NUMBER"))
if a>b and a>c
   print("A IS GREATER")
if b>a and b>c:
   Print(" B IS GREATER")
if c>a  and c>b:
   print(C IS GREATER)
```

Q8. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
i==1
a=int(input("ENTER FIRST NUMBER"))
FOR i in range[1, 11];
   print(a,"*=", i ,"=",a * i)
```

Q9. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
a=”1”
while a>=10:
        print("Value of  a=",a)
        a=+1
```

Q10. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
Num=int(rawinput("Number:"))
sum=0
for i in range(10,Num,3)
Sum+=1
if i%2=0:
     print(i*2)
  Else:
print(i*3 print Sum)
```

Q11. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
weather='raining'
if weather='sunny':
        print("wear sunblock")
elif weather='snow':
        print("going skiing")
else:
        print(weather)
```

Q12. Write the modules that will be required to be imported to execute the following code in Python.

```
def main( ):
for i in range (len(string)) ):
if string [i] = = ‘’ “
        print
else:
        c=string[i].upper()
print( “string is:”,c)
print (“String length=”,len(math.floor()))
```

Q13. Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined.

```
DEF execmain():
x = input("Enter a number:")
if (abs(x)=x):
    print ("You entered a positive number")
else:
x=*-1
   print "Number made positive:"x
execmain()
```

Q14. Rewrite the following code in python after removing all syntax error(s).Underline each correction done in the code

```
x=integer(input('Enter 1 or 10'))
if x==1:
for x in range(1,11)
        Print(x)
Else:
        for x in range(10,0,-1):
                print(x)
```

Q15. Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.

```
30=To
for K in range(0,To)
        IF k%4==0:
                print (K*4)
        else
                print (K+3)
```

SOLUTIONS : ERROR FINDING

Ans 1. Correct code:-

```
x= int(input("Enter value of x:"))
for y in range (0,10):
    if x==y:
        print( x+y)
   else:
        print (x-y)
```

Ans 2.

```
a,b = 0,0
if (a = =b) :
    c=a +b
    print(c)
```

Ans 3.

```
Number = 250
while Number<=1000:
        if Number >= 750:
                print (Number)
                Number = Number+100
        else:
                print (Number*2)
Number = Number+50
```

Ans 4.
```
Val = int(raw_input("Value:"))          # Error 1
Adder = 0
for C in range(1,Val,3) :               # Error 2
    Adder+=C
    if C%2==0 :                         # Error 3
        print( C*10  ) # Error 4
    else:                               # Error 5
        print (C ) # Error 6
print(Adder)
```

Ans 5.
```
Val = 25                                #Error 1
for I in range(0,Val):                  #Error 2 and Error 3
        if I%2==0:
                print (I+1)
        else:                           #Error 4
                print (I-1)
```

Ans 6. CORRECTED CODE:-
```
STRING= "WELCOME"
NOTE=" "
for S in range (0, 7) :
        print (STRING [S])
```

Also range(0,8) will give a runtime error as the index is out of range. It shouldbe range(0,7)

Ans 7.
```
a=int(input("ENTER FIRST NUMBER"))
b=int(input("ENTER SECOND NUMBER"))
c=int(input("ENTER THIRD NUMBER"))
if a>b and a>c:
        print("A IS GREATER")
if b>a and b>c:
        print(" B IS GREATER")
if c>a  and c>b:
        print(" C IS GREATER ")
```

Ans 8. CORRECTED CODE
```
i=1
a=int(input("ENTER FIRST NUMBER"))
for i in range(1,11):
        print(a,"*=",i,"=",a*i)
```

Ans 9. CORRECTED CODE
```
a=1
while a<=10:
      print("Value of  a=",a)
      a+=1
```

Ans 10. CORRECTED CODE
```
Num=int(input("Number:"))
sum=0
for i in range(10, Num,3):
  sum+=1
  if i%2==0:
    print(i*2)
  else:
    print(i*3)
print(sum)
```

Ans. 11 Corrected Code

```
weather='raining'
if weather==='sunny':
    print("wear sunblock")
elif weather==='snow':
    print("going skiing")
else:
    print(weather)
```

Ans.12. Math module and String module

Ans 13. Corrected code:

```
def execmain():
   x= input("Enter a number:") (indentation)
   if(abs(x)== x):
       print("You entered a positive number")
   else:
       x *= -1(indentaion)
   print("Number made positive:" , x)
execmain()
```

Ans-14.

```
x=int(input('Enter 1 or 10'))
if x==1:
        for x in range(1,11):
                print(x)
else:
        for x in range(10,0,-1):
                print(x)(indentation)
```

Ans 15.

```
To=30
for K in range(0,To) :
        if k%4==0:
                print (K*4)
        else:
                print (K+3)
```

QUESTIONS - FIND THE OUTPUT

Q1. Find output generated by the following code:

```
p=10
q=20
p*=q//3
q+=p=q**2
print(p, q)
```

Q2. Find output generated by the following code:

```
Str=”Computer”
Str=Str[-4:]
print(Str*2)
```

Q3. Find out the output of the Following –

```
x=20
x=x+5
x=x-10
print (x)
x, y=x-1,50
print (x, y)
```

Q4. Find out the output of the Following –

```
for a in range(3,10,3):
        for b in range(1,a,2):
                print(b, end=' ')
        print( )
```

Q5. FIND OUTPUT OF FOLLOWING

```
x=10
y=5
for i in range(x-y*2):
   print("%",i)
```

Q6. Find output generated by the following code:

```
x="one"
y="two"
c=0
while c<len(x):
   print(x[c],y[c])
   c=c+1
```

Q7. Find output generated by the following code:

```
for i in range(-1,7,2):
      for  j in range(3):
            print(i,j)
```

Q8. Find output generated by the following code:

```
string=”aabbcc”
count=3
while True:
   if string[0]=='a':
      string=string[2:]
   elif string[-1]=='b':
      string=string[:2]
   else:
      count+=1
      break
print(string)
print(count)
```

Q9. Find output generated by the following code:

```
x="hello world"
print(x[:2],x[:-2],x[-2:])
print(x[6],x[2:4])
print(x[2:-3],x[-4:-2])
```

Q10. Find and write the output of the following python code:

```
Msg1="WeLcOME"
Msg2="GUeSTs"
Msg3=""
for I in range(0,len(Msg2)+1):
        if Msg1[I]>="A" and Msg1[I]<="M":
                Msg3=Msg3+Msg1[I]
        elif Msg1[I]>="N" and Msg1[I]<="Z":
                Msg3=Msg3+Msg2[I]
        else:
                Msg3=Msg3+"*"
print (Msg3)
```

Q11. Find and write the output of the following python code :

```
def Changer(P,Q=10):
        P=P/Q
        Q=P%Q
        print (P,"#",Q)
        return P
A=200
B=20
A=Changer(A,B)
print (A,"$",B)
B=Changer(B)
print (A,"$",B)
A=Changer(A)
print (A,"$",B)
```

Q12. Find and write the output of the following python code:

```
Data = ["P",20,"R",10,"S",30]
Times = 0
Alpha = ""
Add = 0
for C in range(1,6,2):
        Times= Times + C
        Alpha= Alpha + Data[C-1]+"$"
        Add = Add + Data[C]
print (Times,Add,Alpha)
```

Q13. Find and write the output of the following python code:

```
Text1="AISSCE 2018"
Text2=""
I=0
while I<len(Text1):
   if Text1[I]>="0" and Text1[I]<="9":
        Val = int(Text1[I])
        Val = Val + 1
        Text2=Text2 + str(Val)
   elif  Text1[I]>="A" and Text1[I] <="Z":
        Text2=Text2 + (Text1[I+1])
   else:
        Text2=Text2 + "*"
   I=I+1
print (Text2)
```

Q14. Find and write the output of the following python code:

```
TXT = ["20","50","30","40"]
CNT = 3
TOTAL = 0
for C in [7,5,4,6]:
    T = TXT[CNT]
    TOTAL = float (T) + C
    print(TOTAL)
    CNT-=1
```

Q15. Find output generated by the following code:

```
line = "I'll come by then."
eline = ""
for i in line:
   eline += chr(ord(i)+3)
print(eline)
```

Q16. Find output generated by the following code:

```
line =  "What will have so will"
L = line.split('a')
for i in L:
   print(i, end=' ')
```

Q17. Find output generated by the following code:

```
p=5/2
q=p*4
r=p+q
p+=p+q+r
q-=p+q*r
print(p,q,r)
```

Q18. Find output generated by the following code:

```
a=(2 + 3) ** 3 – 6 / 2
 b=(2 + 3) * 5// 4 + (4 + 6) / 2
 c=12 + ( 3 * 4 – 6 ) / 3
d=12 % 5 * 3 + (2 * 6) // 4
print(a, b, c, d)
```

Q19. Find the output of the following:

```
def main( ) :
        Moves=[11, 22, 33, 44]
        Queen=Moves
        Moves[2]+=22
        L=len(Moves)
        for i in range (L):
                print ("Now@", Queen[L-i-1], "#", Moves [i])
main()
```

Q20. Find the output of the following

```
L1 = [100,900,300,400,500]
START = 1
SUM = 0
for C in range(START,4):
    SUM = SUM + L1[C]
    print(C, ":", SUM)
    SUM = SUM + L1[0]*10
    print(SUM)
```

Q21. Find and write the output of the following python code:

```
def fun(s):
     k=len(s)
     m=" "
     for i in range(0,k):
        if(s[i].isupper()):
            m=m+s[i].lower()
        elif s[i].isalpha():
            m=m+s[i].upper()
        else:
```

```
            m=m+'bb'
        print(m)
fun('school2@com')
```

Q22. Find the output of the give program :

```
def Change(P ,Q=30):
        P=P+Q
        Q=P-Q
        print( P,"#",Q)
        return (P)
R=150
S=100
R=Change(R,S)
print(R,"#",S)
S=Change(S)
```

Q23. Find the output of the give program :

```
x = "abcdef"
i = "a"
while i in x:
        print(i, end = " ")
```

SOLUTION : FIND THE OUTPUT

1. Output:- 60, 480

2. ANS uteruter
'ComputerComputer'

3. ANS: 15
14, 50

ANS 4: 1
1 4
1 4 7

ANS 5:- NO OUTPUT

Ans 6.: o t
n w
e o

ANS 7: -1 0
-1 1
-1 2
1 0
1 1
1 2
3 0
3 1
3 2
5 0
5 1
5 2

Ans. 8 bbcc
4

Ans 9: he hello wor ld
w ll
llo wo or

ANS 10. G*L*TME

Ans 11. 10 # 10
10 $ 20
2 # 2
10 $ 2
1 # 1
1 $ 2

Ans 12- 1 20 P$
4 30 PR
9 60 PRS$

Ans 13.- ISSCE*3129

ANS 14. 47.0

35.0
54.0
26.0

ANS 15. L*oo#frph#e|#wkhq1

ANS 16. Wh t will h ve so will

Ans 17. (27.5 - 142.5 12.5)

Ans 18. (122.0 11.0 14.0 9)

Ans 19.
Now @ 44 # 11
Now @ 55 # 22
Now @ 22 # 55
Now @ 11 # 44

Ans 20.
1:900
1900
3200
3:3600
4600

Ans 21. SCHOOLbbbbCOM

Ans 22.
250 #150
250 #100
130 #100

Ans 23. -- aaaaaa **OR** infiniteloop

QUESTIONS: BASED ON TUPLE

Q1: Find the output of following codes

1.
```
t1=("sun","mon","tue","wed")
print(t1[-1])
```

2.
```
t2=("sun","mon","tue","wed","thru","fri")
for i in range (-6,2):
        print(t2[i])
```

3.
```
t3=("sun","mon","tue","wed","thru","fri")
if "sun" in t3:
    for i in range (0,3):
        print(t2[i])
else:
    for i in range (3,6):
        print(t2[i])
```

4.
```
t4=("sun", "mon", "tue", "wed", "thru", "fri")
if "sun" not in t4:
    for i in range (0,3):
        print(t4[i])
else:
    for i in range (3,6):
        print(t4[i])
```

5.
```
t5=("sun",2,"tue",4,"thru",5)
if "sun" not in t4:
    for i in range (0,3):
        print(t5[i])
else:
    for i in range (3,6):
        print(t5[i])
```

6.
```
t6=('a','b')
```

```
t7=('p','q')
t8=t6+t7
print(t8*2)
```

7.
```
t9=('a','b')
t10=('p','q')
t11=t9+t10
print(len(t11*2))
```

8.
```
t12=('a','e','i','o','u')
p, q, r, s, t=t12
print("p= ",p)
print("s= ",s)
print("s + p", s + p)
```

9.
```
t13=(10,20,30,40,50,60,70,80)
t14=(90,100,110,120)
t15=t13+t14
print(t15[0:12:3])
```

Q2. Find the errors

1.
```
t1=(10,20,30,40,50,60,70,80)
t2=(90,100,110,120)
t3=t1*t2
Print(t5[0:12:3])
```

2.
```
t1=(10,20,30,40,50,60,70,80)
i=t1.len()
Print(T1,i)
```

3.
```
t1=(10,20,30,40,50,60,70,80)
t1[5]=55
t1.append(90)
print(t1,i)
```

4.
```
t1=(10,20,30,40,50,60,70,80)
t2=t1*2
t3=t2+4
print t2,t3
```

5.
```
t1=(10,20,30,40,50,60,70,80)
str=""
str=index(t1(40))
print("index of tuple is ", str)
str=t1.max()
print("max item is ", str)
```

SOLUTION: OUTPUTS TUPLES

1. wed

2.
```
sun
mon
tue
wed
thru
fri
sun
mon
```

3. sun
Mon
Tue

4. wed
thru
fri

5. 4
thru
5

6. (‘a’, ‘b’, ‘p’, ‘q’, ‘a’, ‘b’, ‘p’, ‘q’)

7. 8

8. p= a
s= o
s + p oa

9. 10, 40, 70, 100

Q2. TUPLES : FIND THE ERRORS

Ans 1 a. ti*t2 cant multiply
b. P is in uppercase in print command
c. t5 is not defined

Ans 2 a. len() is used wrongly
b. P is in uppercase in print command
c. T1 is not defined

Ans 3 a. 'tuple' object does not support item assignment in line 2
b. Append() Method is not with tuple

Ans. 4 a) line 3 cannot concatenate with int
b) Parenthesis is missing in line 4

Ans 5 a. Syntax error in index function
b. Syntax error in max function

QUESTION: BASED ON LIST

Q1. Give the output of the following code:-

```
list=['p','r','o','b','l','e','m']
list[1:3]=[]
print(list)
list[2:5]=[]
print(list)
```

Q2. Give the output of the following code:-

```
l1=[13,18,11,16,13,18,13]
print(l1.index(18))
print(l1.count(18))
l1.append(l1.count(13))
print(l1)
```

Q3. Find the error in following code. State the reason of the error.

```
aLst = { ‘a’:1 ,’ b’:2, ‘c’:3 }
print (aLst[‘a’,’b’])
```

Q4. Find the error in following code. State the reason of the error.

```
list1 =[1998, 2002, 1997, 2000]
list2 =[2014, 2016, 1996, 2009]
print"list1 + list 2 = : ", list1 +list2   #statement 1
print"list1 * 2 = : ", list1 *2            #statement 2
```

Q5. What is the output of the following:?

```
list1 = [1, 2, 3, 4, 5]
list2 =list1
```

```
list2[0] =0;
print("list1= : ", list1)
```

Q6. What is the output of the following:

```
data =[2, 3, 9]
temp =[[x forx in[data]] forx inrange(3)]
print(temp)
```

a) [[[2, 3, 9]], [[2, 3, 9]], [[2, 3, 9]]]
b) [[2, 3, 9], [2, 3, 9], [2, 3, 9]]
c) [[[2, 3, 9]], [[2, 3, 9]]]
d) None of these

Q7. What is the output of the following:?

```
Temp =['Geeks', 'for', 'Geeks']
arr =[i[0].upper() for i in temp]
print(arr)
```

a) ['G', 'F', 'G']
b) ['GEEKS']
c) ['GEEKS', 'FOR', 'GEEKS']
d) Compilation error

Q8. What will be the output?

1. d1 ={"john":40, "peter":45}
2. d2 ={"john":466, "peter":45}
3. d1 > d2

a) True
b) False
c) ERROR
d) None

Q9. What will be the error of the following code Snippet?

```
Lst =[1,2,3,4,5,6,7,8,9]
Lst[::2]=10,20,30,40,50,60
Print[Lst]
```

Q10. Find the error in following code. State the reason of the error

```
aLst={'a':1,'b':2,'c':3}
print(aLst['a','b'])
```

Q11. What will be the output of the following Code Snippet?

```
a =[1,2,3,4,5]
print(a[3:0:-1])
```

A. Syntax error
B. [4, 3, 2]
C. [4, 3]
D. [4, 3, 2, 1]

Q12. What will be the output of the following Code Snippet?

```
fruit_list1 = ['Apple', 'Berry', 'Cherry', 'Papaya']
fruit_list2 = fruit_list1
fruit_list3 = fruit_list1[:]
fruit_list2[0] = 'Guava'
fruit_list3[1] = 'Kiwi'
sum = 0
for ls in (fruit_list1, fruit_list2, fruit_list3):
   if ls[0] == 'Guava':
      sum += 1
   if ls[1] == 'Kiwi':
      sum += 20
print (sum)
```

A. 22
B. 21
C. 0
D. 43

Q13. What will be the output of the following Code Snippet?

```
a = {(1,2):1,(2,3):2}
print(a[1,2])
```

A. Key Error **B.** 1 **C.** {(2,3):2} **D.** {(1,2):1}

Q14. What will be the output of the following Code Snippet?

```
my_dict = {}
my_dict[1] = 1
my_dict['1'] = 2
my_dict[1.0] = 4
sum = 0
for k in my_dict:
   sum += my_dict[k]
print (sum)
```

A. 7 **B.** Syntax error
C. 3 **D.** 6

Q15. What will be the output of the following Code Snippet?

```
my_dict = {}
my_dict[(1,2,4)] = 8
my_dict[(4,2,1)] = 10
my_dict[(1,2)] = 12
sum = 0
for k in my_dict:
   sum += my_dict[k]
print (sum)
print(my_dict)
```

A. Syntax error
B. 30
{(1, 2): 12, (4, 2, 1): 10, (1, 2, 4): 8}
C. 47
{(1, 2): 12, (4, 2, 1): 10, (1, 2, 4): 8}
D. 30
{[1, 2]: 12, [4, 2, 1]: 10, [1, 2, 4]: 8}

SOLUTIONS: BASED ON LIST

Ans.1 ['p','b','l','e','m']
['p','b']

Ans. 2 1
2
[13,18,11,16,13,18,13,3]

Ans 3: The above code will produce KeyError, the reason being that there is no key same as the list ['a','b']

Ans 4. list1 + list 2 = : [1998, 2002, 1997, 2000, 2014, 2016, 1996, 2009]
list1 * 2 = : [1998, 2002, 1997, 2000, 1998, 2002, 1997, 2000]

Ans 5. List1:[0,2,3,4,5]

Ans 6. (a)

Explanation: [x for x in[data] returns a new list copying the values in the list data and the outer for statement prints the newly created list 3 times.

Ans7. a

Ans 8. Type Error

Ans 9. ValueError: attempt to assign sequence of size 6 to extended slice of size 5

Ans 10. The above code produce KeyError, the reason being that there is no key same as the list['a','b'] in dictionary aLst

Ans 11. B

Ans 12. A

Ans 13. B

Ans 14. D

Ans 15. B

QUESTIONS : FUNCTIONS - OUTPUT AND ERROR

QA. Identify the errors, underline it and correct the errors

a)
```
Def Sum(a=1,b)
        return a+b
print ("The sum =" Sum(7, -1)
```

b)
```
def main ( )
print ("hello")
```

c)
```
def func2() :
        print (2 + 3)
func2(5)
```

Q1. Find the output of the following numbers:
```
Num = 20
Sum = 0
for I in range (10, Num, 3):
        Sum+=i
        if i%2==0:
                print (i*2)
        else:
                print (i*3)
```

Q2. Find the output of the following
```
Text="gmail@com"
L=len(Text)
ntext=" "
for i in range (0,L):
        if   text[i].isupper():
                ntext=ntext+text[i].lower()
        elif text[i].isalpha():
                ntext=ntext+text[i].upper()
        else:
                ntext=ntext+'bb'
```

Q3. Find the output of the following-
```
def  power (b , p):
        r = b ** P
        return r

def calcSquare(a):
        a = power (a, 2)
        return a

n = 5
result = calcSquare(n)
print (result)
```

Q4. Find the output of the following-

```
import math
print (math. floor(5.5))
```

Q5. Find the output

```
def gfg(x,l=[ ]) :
        for I in range(x):
                l.append(i*i)
                print(l)
gfg(2)
gfg(3,[3,2,1])
gfg(3)
```

Q6. Find the output of the following-

```
count =1
def  dothis():
        global count
        for I in (1,2,3):
            count+=1
dothis( )
print (count)
```

Q7. Find the output of the following-

```
def addem(x,y,z):
    print(x+y+z)
def prod(x,y,z):
    return x*y*z
A=addem(6,16,26)
B=prod(2,3,6)
print(a,b)
```

Q8.

```
def Func(message,num=1):
    print(message*num)
Func('python')
Func('easy',3)
```

Q9.

```
def Check(n1=1,n2=2):
    n1=n1+n2
    n2+=1
    print(n1,n2)
Check( )
Check(2,1)
Check(3)
```

Q. 10.

```
a=10
def call( ):
        global a
        a=15
        b=20
        print(a)
call( )
```

11. Write a user defined function **GenNum(a, b)** to generate odd numbers between a and b (including b).

12. Write definition of a method/function **AddOdd(VALUES)** to display sum of odd values from the list of VALUES.

13. Write definition of a Method MSEARCH(STATES) to display all the state names from a list of STATES, which are starting with alphabet M.
    For example:
    If the list STATES contains ["MP","UP","MH","DL","MZ","WB"]
    The following should get displayed
    MP
    MH
    MZ
14. Write a python function generatefibo(n) where n is the limit, using a generator function Fibonacci (max)(where max is the limit n) that produces Fibonacci series.

15. Write a definition of a method COUNTNOW(PLACES) to find and display those place names, in which here are more than 7 characters.
    For example:
    If the list PLACES contains. **["MELBORN","TOKYO","PINKCITY","BEIZING","SUNCITY"]**
    The following should get displayed : **PINKCITY**

SOLUTION: FUNCTIONS - OUTPUT AND ERROR

Ans Aa:
```
def sum(a=1,b) :
    return a+b (indentation)
print ("The sum =", Sum(7,-1))
```

Ans Ab:
```
def main ( ):
    print ("hello")
```

Ans Ac:
```
def func2() :
    print (2 + 3)
```
func2() no parameter is to be passed

1. output:
```
20
39
32
57
```

2. Output: GMAILbbCOM

3. output: 25

4. output: 6

5. output: [0,1]
[3,2,1,0,1,4]
[0,1,0,1,4]

6. output: 4

7. output: 36

8. output:
```
python
easyeasyaesy
```

9. Output:
```
3 3
3 2
5 3
```

10. 15

11.
```
def getNum(a,b):
    for i in range(a,b+1):
        if i%2==1:
            print(i)
```

12.Ans
```
def AddOdd(Values):
    n=len(NUMBERS)
    s=0
    for i in range(n):
        if (i%2!=0):
            s=s+NUMBERS[i]
            print(s)
```

13. Ans
```
def MSEARCH(STATES):
    for i in STATES:
        if i[0]=='M':
            print(i)
```

14.
```
def Fibonacci (max):
    a, b = 0, 1
    while a <=max:
        yield a,
        a, b = b, a+b
def generatefibo(n):
        for i in Fibonacci (n):
            print( i)
```

15. Ans.
```
l =["MELBORN","TOKYO","PINKCITY","BEIZING","SUNCITY"]
def countno(m):
        length=len(m)
        for i in range(0,length):
            if len(m[i])>7:
                print(m[i])
countno(l)
```

QUESTIONS: PYTHON LIBRARY/PACKAGE

SECTION A (1 MARK QUESTION)

Q1. Which operator is used in the python to import all modules from packages?

(a) . operator
(b) * operator
(c) -> symbol
(d) , operator

Q2. Which file must be part of the folder containing python module file to make it importable python package?

(a) init.py
(b) ___steup__.py
(c) __init ___.py
(d) (d) setup.py

Q3. In python which is the correct method to load a module math?

(a) include math
(b) import math
(c) #include<math.h>
(d) using math

Q4. Which is the correct command to load just the tempc method from a module called usable?

(a) import usable,tempc (b) Import tempc from usable
(c) from usable import tempc (d) import tempc

Q5. What is the extension of the python library module?

(a) .mod (b) .lib
(c) .code (d) .py

SECTION B (2 MARK QUESTION)

Q1. How can you locate environment variable for python to locate the module files imported into a program?

Q2. What is the output of the following piece of code?

```
#mod1
def change (a):
        b=[x*2 for x in a]
        print (b)
#mod2
def change  (a)  :
        b =[x*x for x in a]
        print (b)
from mode 1 import change
from mode 2 import change
        #main
S= [1,2,3]
Change  (s)
```

Note: Both the modules mod1 and mod 2 are placed in the same program.

(a) [2,4,6] (b) [1,4,9]
(c) [2,4,6][1,4,9] (d) There is a name clash

Q3. What happens when python encounters an import statement in a program? What would happen, if there is one more important statement for the same module, already imported in the same program?

Q4. What is the problem in the following piece of code?

```
from math import factorial
print (math.factorial (5))
```

Q5. What is the output of the following piece of code?

```
#mod1
def change (a):
        b=[x*2 for x in a]
        print (b)
#mod2
def change (a):
        b=[x*x for x in a]
        print (b)
from mod1 import change
from mod2 import change
#main
S=[1,2,3]
Changes(s)
```

Q6. What would be the output produced by the following code :

```
import math
import random
print ( math.ceil (random.random()))
```

Justify your answer.

SECTION C (3 MARK QUESTION)

Q1. Observe the following code and answer the question based on it.

```
# the math_operation module
def add (a,b):
        return a+b
def subtract(a,b):
        return a-b
```

Fill in the blanks for the following code:

1. Math _operation #get the name of the module.
2. print (_____) #output: math_operation
   # Add 1and 2
3. print(_____(1,2)) # output 3

Q2. Consinder the code given in above and on the basis of it, complete the code given below:

```
# import the subtract function
#from the math_operation module
1._____                    #subtract 1from 2
2.print(_____(2,1)  )      # output : 1
                           # Import everything from math___operations
3._____
print (subtract (2,1) )    # output:1
print (add (1,1)  )        # output:2
```

Q3. Consider a module 'simple' given below:

```
#module simple.py
" " "Greets or scold on call" " "
def greet():
    " " " Greet anyone you like :-)" " "
     Print ("Helloz")
def  scold ():
" " " Use me for scolding ,but scolding is not good:-( " " "
      Print ("Get lost")
Count =10
print ("greeting or scolding- is it simple?")
```

Another program 'test.py' imports this module.The code inside test.py is :

```
#test.py
import simple
print(simple.count)
```

What would be the output produced ,if we run the program test.py? justify your answer.

Q4. Consider the following code:

```
import math
import random
print(str(int(math.pow( random.randint (2,4),2) )), end = ' ')
print(str( int ( math.pow(random.randint(2,4), 2))) , end = ' ')
print( str ( int (math.pow( random .randint (2,4),2))))
```

What would be possible outputs out of the given four choices?

(i) 2 3 4
(ii) 9 4 4
(iii) 16 16 16
(iv) 2 4 9
(v) 4 9 4
(vi) 4 4 4

SOLUTIONS : PYTHON LIBRARY/PACKAGE

SECTION A (1 MARK ANSWERS)

Ans 1. (b)
Ans 2. (c)
Ans 3. (b)
Ans 4. (C)
Ans 5. (d)

SECTION B (2 MARK ANSWERS)

Ans 1. Pythonpath command is used for the same. It has a role similar to path. This variable tells the python interpreter where to locate the module files imported into a program.It should include the python source library ,directory containing python source code.

Ans 2. (d)

Ans 3. When python encounters an important statement, it does the following:

- The code of imported module is interpreted and executed.
- Defined functions and variables created in the module are now available to the program that imported module.
- For imported module, a new namespace is set up with the same name as that of the module.

Any duplicate import statement for the same module in the same program is ignored by python

Ans 4. In the "from–import" from of import, the imported identifiers (in this case factorial ()) become part of the current local namespace and hence their module's name aren't specified along with the module name. Thus, the statement should be:

print(factorial (5))

Ans 5. There is a **name clash**. A name clash is a situation when two different entities with the same name become part of the same scope. Since both the modules have the same function name, there is a name clash, which is an error..

Ans6. The output Produced would be 1.0

SECTION C (3 MARK ANSWERS)

Ans 1 . 1. input
2. math_operation_name_
3. math.operation.add

Ans 2. 1. from__operation import subtract
2. subtract
3. from math___ operation import*

Ans 3. The output produced would be:
Greeting or scolding – is it simple ?
10
The reason being , import module's main block is executed upon import, so its important statement cause it to print:
Greting or scolding- is it simple?
And print (simple.count) statement causes output's next line ,i.e., 10

Ans 4. The possible outputs could be (ii), (iii) (v) and (vi).
The reason being that randint( ) would generate an integer between range 2…4, which is then raised to power 2.

QUESTIONS : FILE HANDLING

Ques write a program in python to write and read structure, dictionary to the binary file.

Ans

```
import pickle
d1={'jan':31,'feb':28,'march':31,'april':30}
f=open('binfile.dat','wb+')
pickle.dump(d1,f)
d2=pickle.load(f)
print(d2)
f.close()
```

The above program saves a dictionary in binfile.dat and prints it on console after reading it from the file binfile.dat

QUESTIONS (1 MARK)

Q1. What is the difference between 'w' and 'a' modes?

Q2. BINARY file is unreadable and open and close through a function only so what are the advantages of using binary file

Q3. Write a statement to open a binary file name sample.dat in read mode and the file sample.dat is placed in a folder (name school) existing in c drive

Q4. Which of the following function returns a list datatype

A) d=f.read() B) d=f.read(10)
C) d=f.readline() D) d=f.readlines()

Q5. How many file objects would you need to manage the following situations :

(a) To process four files sequentially
(b) To process two sorted files into third file

Q6. When do you think text files should be preferred over binary files?

QUESTIONS (2 MARK)

Q1. Write a single loop to display all the contens of a text file file1.txt after removing leading and trailing WHITESPACES

```
out=open('output.txt','w')
out.write('hello,world!\n')
out.write('how are you')
out.close( )
open('output.txt').read( )
```

Q2. Read the code given below and answer the questions

```
f1=open('main.txt','w')
f1.write('bye')
f1.close()
```

if the file contains 'GOOD' before execution, what will be the content of the file after execution of the code

Q3. Observe the code and answer the following

```
f1=open("mydata","a")
_____#blank1
f1.close()
```

(i)what type of file is mydata
(ii) Fill in the blank1 with statement to write "abc" in the file "mydata"

Q4. A given text file data.txt contains :

```
Line1\n
\n
 line3
Line 4
\n
 line6
```

What would be the output of following code?

```
f1=open('data.txt')
```

```
L=f1.readlines()
print(L[0])
print(L[2])
print(L[5])
print(L[1])
print(L[4])
print(L[3])
```

Q5. In which of the following file modes the existing data of the file will not be lost?

i) rb
ii) w
iii) a+b
iv) wb+
v) r+
vi) ab
vii) w+b
viii)wb
ix) w+

Q6. What would be the data types of variables Data in following statements?

i) Data=f.read( )
ii) Data=f.read(10)
iii) Data=f.readline()
iv)Data=f.readlines()

Q7. Suppose a file name test1.txt store alphabets in it then what is the output of the following code

```
f1=open("test1.txt")
size=len(f1.read())
print(f1.read(5))
```

QUESTIONS (3 MARKS)

Q1. Write a user defined function in python that displays the number of lines starting with 'H'in the file para.txt

Q2. Write a function countmy() in python to read the text file "DATA.TXT" and count the number of times "my" occurs in the file. For example if the file DATA.TXT contains-"This is my website. I have diaplayed my preference in the CHOICE section ".-the countmy() function should display the output as:"my occurs 2 times".

Q3. Write a method in python to read lines from a text file DIARY.TXT and display those lines which start with the alphabets P.

Q4 write a method in python to read lines from a text file MYNOTES.TXT and display those lines which start with alphabets 'K'

Q5 write a program to display all the records in a file along with line/record number.

Q6. consider a binary file employee.dat containing details such as empno:ename:salary(seperator ':') write a python function to display details of those employees who are earning between 20000 and 30000(both values inclusive)

Q7. write a program that copies a text file "source.txt" onto "target.txt" barring the lines starting with @ sign.

SOLUTONS : FILE HANDLING

(1 MARK QUESTIONS)

Ans1. w mode opens a file for writing only. it overwrites if file already exist but 'a mode appends the existing file from end. It does not overwrites the file

Ans2 binary file are easier and faster than text file.binary files are also used to store binary data such as images, video files, audio files.

Ans3 f1=open("c:\school\sample.dat",'r')

Ans4 d) f.readlines()
Ans5 a)4 b)3
Ans6 Text file should be preferred when we have to save data in text format and security of file is not important

(2 MARKS QUESTIONS)

Ans1
```
for line in open("file1.txt"):
    print(line.strip())
```

Ans2 The file would now contains "Bye"only because when an existing file is openend in write mode .it truncates the existing data in file .

Ans3 i) Text file
ii) f1.write("abc")

Ans4 Line1
Line3
Line 6
Line 4

Ans5 ab and a+b mode

Ans6 a) string b)string c)string d)list

Ans7 No Output
Explanation: the f1.read() of line 2 will read entire content of file and place the file pointer at the end of file. for f1.read(5) it will return nothing as there are no bytes to be read from EOF and, thus,print statement prints nothing.

ANSWERS (3 MARKS QUESTION)

Ans.1
```
def count H( ):
    f = open ("para.txt" , "r" )
    lines =0
    l=f. readlines ()
    for i in L:
        if i [0]== 'H':
            lines +=1
    print ("No. of lines are: " , lines)
```

Ans.2
```
def countmy ():
    f=open ("DATA.txt" ,"r")
    count=0
    x= f.read()
    word =x.split ()
    for i in word:
        if (i == "my"):
            count =count + 1
    print ("my occurs" ,count, "times")
```

Ans.3
```
def display ():
    file=open('DIARY.txt ' , 'r')
    line= file.readline()
    while line:
        if line[0]== 'p' :
            print(line)
        line=file.readline ()
    file.close()
```

Ans.4
```
def display ():
    file=open(MYNOTES.TXT' , 'r')
    line=file.readlines()
    while line:
        if line[0]=='K' :
            print(line)
        line=file.readline()
```

```
        file.close()
```

Ans5.
```
f = open("result.dat" , "r")
count=0
rec=""
while True:
        rec=f.readline (0)
        if rec == " " :
                break
        count=count+1
        print (count,rec)
f.close()
```

Ans.6
```
def Readfile():
        i=open( "Employee.dat" , "rb+")
        x=i .readline()
        while(x):
                I= x.split(':')
                if ( (float (I[2]) >=20000) and (float I[2])<=40000):
                        print(x)
                x= i.readline()
```

Ans.7
```
def filter (oldfile, newfile):
        fin =open (oldfile, "r")
        fout= open (newfile,  "w")
        while True:
                text =fin.readline ()
                if len(text)==0:
                        break
                if text[0]== "@":
                        continue
                fout.write(text)
        fin.close()
        fout.close()
filter("source.txt" ,  "target.txt")
```

QUESTIONS : CSV FILE

Q1. Sunita writing a program to create a csv file "a.csv" which contain user id and name of the beneficiary. She has written the following code. As a programmer help her to successfully execute the program.

```
import _____ #Line 1
with open('d:\\a.csv','w') as newFile:
  newFileWriter = csv.writer(newFile)
  newFileWriter.writerow(['user_id','beneficiary'])
  newFileWriter._____([1,'xyz']) #Line2
newFile.close()
with open('d:\\a.csv','r') as newFile:
  newFileReader = csv._____(newFile) #Line 3
  for row in newFileReader:
        print (row) #Line 4
newFile._____ #Line 5
```

a) Name the module he should import in Line 1

b) Fill in the blank in line 2 to write the row.

c) Fill in the blank in line 3 to read the data from csv file.

d) Write the output while line 4 is executed.

e) Fill in the blank in line 5 to close the file.

Q2. MOHIT is writing a program to search a name in a CSV file "MYFILE.csv". He has written the following code. As a programmer, help him to successfully execute the given task.

```
import _________ # Statement 1
f = open("MYFILE.csv", _______) # Statement 2
data = _____________ ( f ) # Statement 3
nm = input("Enter name to be searched: ")
for rec in data:
if rec[0] == nm:
print (rec)
f._________( ) # Statement 4
```

(a) Name the module he should import in Statement 1.
(b) In which mode, MOHIT should open the file to search the data in the file in statement 2?
(c) Fill in the blank in Statement 3 to read the data from the file.
(d) Fill in the blank in Statement 4 to close the file.
(e) Write the full form of CSV.

3. Anis of class 12 is writing a program to create a CSV file "mydata.csv" which will contain user name and password for some entries. He has written the following code. As a programmer, help him to successfully execute the given task

```
import _____________ # Line 1
def addCsvFile(UserName,PassWord): # to write / add data into the CSV file
        f=open(' mydata.csv','________')# Line 2
newFileWriter = csv.writer(f)
newFileWriter.writerow([UserName,PassWord])
f.close() #csv file reading code
def readCsvFile(): # to read data from CSV file
with open('mydata.csv','r') as newFile:
            newFileReader = csv._________(newFile) # Line 3
            for row in newFileReader:
                    print (row[0],row[1])
newFile._______________ # Line 4
addCsvFile("Aman","123@456")
addCsvFile("Anis","aru@nima")
addCsvFile("Raju","myname@FRD")
readCsvFile() #Line 5
```

(a) Give Name of the module he should import in Line 1.
(b) In which mode, Aman should open the file to add data into the file
(c) Fill in the blank in Line 3 to read the data from a csv file.
(d) Fill in the blank in Line 4 to close the file.
(e) Write the output he will obtain while executing Line 5.

SOLUTIONS : CSV FILES

1. a) import csv
   b) newFileWriter.writerow([1,'xyz'])
   c) newFileReader = csv.reader(newFile)
   d) User_Id Beneficiary
      1 xyz
   e) newFile.close()

2. (a) csv.
   (b) "r"?

(c) data = csv.reader(f)
(d) f.close()
(e) Comma Separated Values

3. (a) Line 1 : csv
(b) Line 2 : a
(c) Line 3 : reader
(d) Line 4 : close()
(e) Line 5 : Aman 123@456
Anis aru@nima
Raju myname@FRD

QUESTION : DATA STRUCTURE (STACK IN PYTHON)

1. Write a program for linear search in a list.
2. Write PushOn(Book) and Pop(Book) methods/functions in Python to add a new Book and delete a Book from a list of Book titles, considering them to act as push and pop operations of the Stack data structure.
3. Write a function AddCustomer(Customer) in Python to add a new Customer information NAME into the List of CStack and display the information.
4. Write a function DeleteCustomer() to delete a Customer information from a list of CStack. The function delete the name of customer from the stack

SOLUTIONS : DATA STRUCTURE (STACK IN PYTHON)

Ans 1. Write a program for linear search in a list.

```
L= input("Enter the elements: ")
n=len(L)
item=input("Enter the element that you want to search : ")
for i in range(n):
        if L[i]==item:
                print("Element found at the position :", i+1)
        break
else:
print("Element not Found")
```

Ans 2.

```
def PushOn(Book):
        a=input("enter book title :")
        Book.append(a)
def Pop(Book):
        if (Book = =[ ]):
                print("Stack empty")
        else:
                print("Deleted element :")
                Book.pop()
```

OR

```
class Stack:
        Book=[ ]
        def PushOn(self):
                a=input("enter book title:")
                Stack.Book.append(a)
        def Pop(self):
                if (Stack.Book==[ ]):
```

```
            print("Stack empty")
        else:
            print("Deleted element :",Stack.Book.pop( ))
```

3.
```
def AddCustomer(Customer):
    CStake.append(Customer)
    if len(CStack)==0:
        print ("Empty Stack")
    else:
        print (CStack)
```

4.
```
def DeleteCustomer():
    if (CStack ==[]):
        print("There is no Customer!")
    else:
        print("Record deleted:",CStack.pop())
```

QUESTIONS : COMPUTER NETWORK

1. What are the components required for networking?
2. What is spyware?
3. What is Ethernet?
4. Write two advantage and disadvantage of networks.
5. What is ARPAnet ?
6. What is communication channel?
7. Define baud, bps and Bps. How are these interlinked?
8. What do you understand by InterSpace?

09. Name two switching circuits and explain any one

10. What is communication channel? Name the basic types of communication channels available
11. What are the similarities and differences between bus and tree topologies?
12. What are the limitations of star topology?
13. When do you think, ring topology becomes the best choice for a network?
14. Write the two advantages and two disadvantages of Bus Topology in network.
15. Define the following:
    (i)RJ-45 (ii)Ethernet
    (iii) Ethernet card (iv)hub (v)Switch
16. What is protocol? Name some commonly used protocols.

17 Define GSM, CDMA, and WLL

18 Define the following: (i)3G (ii)EDGE (iii)SMS (iv)TDMA

19. Define web browser and web server.
20. INDIAN PUBLIC SCHOOL in Darjeeling is setting up the network between its different wings. There are 4 wings named as SENIOR(S), JUNIOR (J), ADMIN (A) and HOSTEL (H).

Distance between various Wings

Wing A to Wing S	100 m
Wing A to Wing J	200 m
Wing A to Wing H	400 m

Wing S to Wing J	300 m
Wing S to Wing H	100 m
Wing J to Wing H	450 m

Number of Computers

Wing A	10
Wing S	200
Wing J	100
Wing H	50

(i) Suggest a suitable Topology for networking the computer of all wings.
(ii) Name the wing where the server is to be installed. Justify your answer
(iii) Suggest the placement of Hub/Switch in the network.
(iv) Mention the economic technology to provide internet accessibility to all wings.

21. Expand the following abbreviations: (i) HTTP (ii) ARPANET
22. What is CSMA/CA?
23. How does CSMA/CA technique works?
24. What are basic methods of checking errors in the data being transmitted over networks?
25. What types of errors may occur in the data transmitted over networks.
26. What do you understand by parity checking?
27. What are the steps followed in checksum generator?
28. What is ACK(Acknowledgement) signal?
29. What is routing?

SOLUTIONS: COMPUTER NETWORK

Ans 1. **Routers**. Routers are devices on the network which is responsible for forwarding data from one device to another. ...
Switches.
Network hubs.
Wireless access points.
Network Cables.
Network Server.
Network Interface Cards (NIC)

Ans 2. **Spyware** is software that is installed on a computing device without the end user's knowledge. Any software can be classified as spyware if it is downloaded without the user's authorization. Spyware is controversial because even when it is installed for relatively innocuous reasons, it can violate the end user's privacy and has the potential to be abused.

Ans 3. Ethernet is the traditional technology for connecting wired local area networks (LANs), enabling devices to communicate with each other via a protocol -- a set of rules or common network language.
As a data-link layer protocol in the TCP/IP stack, Ethernet describes how network devices can format and transmit data packets so other devices on the same local or campus area network segment can recognize, receive and process them. An Ethernet cable is the physical, encased wiring over which the data travels

Ans 4. **Advantage**:
- We can share resources such as printers and scanners.
- Can share data and access file from any computer.

Disadvantage:
- Server faults stop applications from being available.
- Network faults can cause loss of data.

Ans 5. ARPAnet (Advanced Research Project Agency Network is a project sponsored by U. S. Department of Defense.

Ans 6. Name the basic types of communication channels available. Communication channel mean the connecting cables that link various workstations. Following are three basic types of communication channels available:

a) Twisted-Pair Cables
b) Coaxial Cables
c) Fiber-optic Cables

Ans 7. Baud is a unit of measurement for the information carrying capacity of a communication channel. bps- bits per second. It refers to a thousand bits transmitted per second. Bps- Bytes per second. It refers to a thousand bytes transmitted per second. All these terms are measurement

Ans 8. Interspace is a client/server software program that allows multiple users to communicate online with real-time audio, video and text chat I dynamic 3D environments.

Ans9. The two switching circuits are

- Circuit Switching
- Message Switching Circuit Switching - In this technique, first the complete physical connection between two computers is established and then data are transmitted from the source computer to the destination computer.

Ans 10. Communication channel mean the connecting cables that link various workstations. Following are three basic types of communication channels available:

a) Twisted-Pair Cables
b) Coaxial Cables
c) Fiber-optic Cables.

Ans.11. **Similarities**: In both Bus and Tree topologies transmission can be done in both the directions, and can be received by all other stations. In both cases, there is no need to remove packets from the medium.

Differences: Bus topology is slower as compared to tree topology of network. Tree topology is expensive as compared to Bus Topology

Ans 12. Requires more cable length than a linear topology. If the hub, switch, or concentrator fails, nodes attached are disabled. More expensive than linear bus topologies because of the cost of the hubs, etc.

Ans 13. Ring topology becomes the best choice for a network when, short amount of cable is required. No wiring closet space requires.

Ans 14. ADVANTAGE: Easy to connect a computer or peripheral to a linear bus. Requires less cable length than a star topology

.

DISADVANTAGE: Slower as compared to tree and star topologies of network. Breakage of wire at any point disturbs the entire

Ans 15. (i) **RJ-45**: RJ45 is a standard type of connector for network cables and networks. It is an 8-pin connector usually used with Ethernet cables.

(ii)**Ethernet:** Ethernet is a LAN architecture developed by Xerox Corp along with DEC and Intel. It uses a Bus or Star topology and supports data transfer rates of up to 10 Mbps.

(iii)**Ethernet card**: The computers parts of Ethernet are connected through a special card called Ethernet card. It contains connections for either coaxial or twisted pair cables.

(iv)**Hub**: In computer networking, a hub is a small, simple, low cost device that joins multiple computers together.

(v)**Switch**: A Switch is a small hardware device that joins multiple computers together within one local area network (LAN).

Ans 16. A protocol means the rules that are applicable for a network or we can say that the common set of rules used for communication in network. Different types of protocols are :
(i) HTTP : Hyper Text Transfer Protocol
(ii) FTP : File Transfer Protocol
(iii) SLIP : Serial Line Internet Protocol
(iv) PPP : Point to Point Protocol
(v) TCP/IP : Transmission Control Protocol/ Internet Protocol
(vi) NTP : Network Time Protocol
(vii) SMTP : Simple Mail Transfer Protocol
(viii) POP : Post Office Protocol
(ix) IMAP : Internet Mail Access Protocol

Ans 17. **GSM**: GSM (Global system for mobile communication) is a wide area wireless communications System that uses digital radio transmission to provide voice data and multimedia communication services. A GSM system coordinates the communication between mobile telephones, base stations, and switching systems.
CDMA: CDMA (Code Division Multiple Access) is a digital wireless telephony transmission technique, which allows multiple frequencies to be used simultaneously – Spread Spectrum.
WLL: WLL (Wireless in Local Loop) is a system that connects subscriber to the public switched telephone network (PSTN) using radio signal as alternate for other connecting media.

Ans 18 **(i) 3G**: 3G (Third Generation) mobile communication technology is a broadband, packet-based transmission of text, digitized voice, video and multimedia at data rates up to 2 mbps, offering a consistent set of services to mobile computer and phone users no matter where they are located in the world.
(ii)EDGE: EDGE (Enhanced Data rates for Global Evolution) is radio based high-speed of mobile data standard, developed specifically to meet the bandwidth needs of 3G.
(iii)SMS: SMS (Short Message Service) is the transmission of short text messages to and from a mobile phone, fax machine and IP address. (iv)TDMA: TDMA (Time Division Multiple Access) is a technology for delivering digital wireless service using time- division multiplexing (TDM).

Ans 19. **Web Browser:** A Web Browser is software which used for displaying the content on web page(s). It is used by client to view web sites.
Example of Web browser – Google Chrome, Fire Fox, Internet Explorer, Safari, Opera, etc.
Web Server: A Web Server is software which fulfills the request(s) done by web browser. Web server have different ports to handle different request from web browser like generally FTP request is handle at Port 110 and HTTP request is handle at Port 80.
Example of Web server are – Apache, IIS

Ans 20. (i) Star or Bus or any other valid topology or diagram.
(ii) Wing S, because maximum number of computer are located at Wing S.
(iii) Hub/Switch in all the wings.
(iv)Coaxial cable/Modem/LAN/TCP-IP/Dialup/DSL/Leased Lines or any other valid technology.

Ans 21. (i) HTTP - Hyper Text Transfer Protocol
(ii) ARPANET - Advanced Research Project Agency Network

Ans 22 Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA) is a media access protocol that is related to CSMA/CD and is also used on multiple access networks

Ans. 23. Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA) is a media access protocol that is used on multiple access wireless networks. With CSMA/CA, a device listens for an opportunity to transmit its data, i.e, CARRIER SENSE If the carrier is free, the sending device does not immediately transmit data. Rather, it first transmits a signal notifying other devices (i.e., a

warning packet) that it is transmitting for so much time before actually sending the data. The other device refrains from transmitting data for the specified time limit. This means data packets will never collide.

Ans 24. There are many methods of checking or detecting simplest ones are:
(i) Single dimensional parity checking
(ii) Two dimensional parity checking
(iii) Checksums

Ans 25. The errors that may occur in the data transmitted over networks, can be one or more of following types:
(i) Single-bit error. This type of error occurs if only one bit of the transmitted data got changed from 1 to 0 or from 0 to 1.
(ii) Multiple-bit error. This type of error occurs if two or more nonconsecutive bits in data got changed from 0 to 1 or from 1 to 0.
(iii) Burst Error. This type of error occurs if two or more consecutive bits in data got changed from 0 to 1 or from 1 to 0

Ans 26. Parity checking is a method of error detection that can checkk1 or 2 bit errors (but not all dr these) In parity checks, a parity bit is added to the end of a string of binary code to indicate whether the number of bits in the string with the value 1 is even or odd.

Ans 27. The sender, which is the checksum generator, follows these steps:
(a) The units are divided into k sections each of n bits, taking 1's complement to get the sum.
(b) All sections are added together
(c) The sum is complemented and become the checksum.
(d) The checksum is sent with the data.

Ans 28. The acknowledgement signal or the ACK signal is a control code, which is sent by the receiving computer to indicate that the data has been received without error and that the next part of the transmission may be sent.

Ans 29. Routing is the process of selecting paths to move information across networks When a data packet reaches a router, the router selects the best route to the destination network from js routing table and forwards the data packet to the neighbouring router as per the selected best path. This way each router keeps passing the data packet(s) to its neighbouring router on best route the destination and finally the data packet reaches its destination.

QUESTONS: MORE ON SQL

Q1. Define the terms:
(i) Primary Key
(ii) Candidate Key
(iii) Relational Algebra
(iv) Domain

Q2. Answer the following questions:
1. Differentiate between DDL and DML?
2. What is a constraint?
3. What are single row functions?
4. Compare CHAR and VARCHAR data types.
5. Differentiate between WHERE and HAVING clause.
6. The Pincode column of table 'Post' is given below-

100001
1200012
1300013
1600017

1800018

7. Find the output

SELECT Pincode from Post where Pincode LIKE " %1" ;
SELECT Pincode from Post where Pincode LIKE " 0%" ;

8. A table "Animals" in a database has 3 columns and 10 records. What is the degree and cardinality of this table?
9. Which keyword is used to remove redundant data from a relation.
10. What is difference between curdate() and date() functions?

Q3. Consider the following tables GAMES and PLAYER. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii).

Table:GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Table: PLAYER

PCode	Name	Gcode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103

(i) To display the name of all Games with their Gcodes.
(ii) To display details of those games which are having PrizeMoney more than 7000.
(iii) To display the content of the GAMES table in ascending order of ScheduleDate.
(iv) To display sum of PrizeMoney for each of the Number of participation groupings (as shown in column Number 2 or 4)
(v) SELECT COUNT(DISTINCT Number) FROM GAMES;
(vi) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
(vii) SELECT SUM(PrizeMoney) FROM GAMES;
(viii) SELECT DISTINCT Gcode FROM PLAYER;

Q4. Consider the following tables FACULTY and COURSES. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (vi).

FACULTY

F_ID	Fname	Lname	Hire_date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastava	5-6-2006	10000

COURSES

C_ID	F_ID	Cname	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000
C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

i) To display details of those Faculties whose salary is greater than 12000.
ii) To display the details of courses whose fees is in the range of 15000 to 50000 (both values included).

iii) To display details of those courses which are taught by 'Sulekha' in descending order of courses ?
iv) Select COUNT(DISTINCT F_ID) from COURSES;
v) Select Fname,Cname from FACULTY,COURSE where COURSE.F_ID=FACULTY.F.ID;

Q-5 Write SQL Command for (a) to (e) and output of (f)

TABLE : GRADUATE

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP Sc	68	I
3	DIVYA	300	CHEMISTRY	62	I
4	REKHA	350	PHYSICS	63	I
5	ARJUN	500	MATHS	70	I
6	SABINA	400	CHEMISTRY	55	II
7	JOHN	250	PHYSICS	64	I
8	ROBERT	450	MATHS	68	I
9	RUBINA	500	COMP Sc	62	I
10	VIKAS	400	MATHS	57	II

a. List the names of those students who have obtained DIV I sorted by NAME.
b. Display a report, listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the STIPEND is paid every month.
c. To count the number of students who are either PHYSICS or COMPUTER SC graduates.
d. To insert a new row in the GRADUATE table: 11,"KAJOL", 300, "computer sc", 75, 1
e. Give the output of following sql statement based on table GRADUATE:
   (i) Select MIN(AVERAGE) from GRADUATE where SUBJECT="PHYSICS";
   (ii) Select SUM(STIPEND) from GRADUATE WHERE div=2;
   (iii) Select AVG(STIPEND) from GRADUATE where AVERAGE>=65;
   (iv) Select COUNT(distinct SUBJECT) from GRADUATE;

Q-6 Consider the following tables Sender and Recipient. Write SQL commands for the statements (i) to (iv) and give the outputs for SQL queries (v) to (viii).

Sender

SenderID	SenderName	SenderAddress	Sendercity
ND01	R Jain	2, ABC Appls	New Delhi
MU02	H Sinha	12 Newtown	Mumbai
MU15	S Jha	27/A, Park Street	Mumbai
ND50	T Prasad	122-K,SDA	New Delhi

Recipients

RecID	SenderID	RecName	RecAddress	recCity
KO05	ND01	R Bajpayee	5, Central Avenue	Kolkata
ND08	MU02	S Mahajan	116, A-Vihar	New Delhi
MU19	ND01	H Singh	2A, Andheri East	Mumbai
MU32	MU15	P K Swamy	B5, C S Terminals	Mumbai
ND48	ND50	S Tripathi	13, BI D Mayur Vihar	New delhi

a. To display the names of all Senders from Mumbai
b. To display the RecIC, Sendername, SenderAddress, RecName, RecAddress for every Recipient
c. To display Recipient details in ascending order of RecName
d. To display number of Recipients from each city
e. SELECT DISTINCT SenderCity from Sender;
f. SELECT A.SenderName, B.RecName From Sender A, Recipient B
   Where A.SenderID = B.SenderID AND B.RecCity ='Mumbai';
g. SELECT RecName, RecAddress From Recipient
   Where RecCity NOT IN ('Mumbai', 'Kolkata') ;

h. SELECT RecID, RecName FROM Recipent
Where SenderID='MU02' or SenderID='ND50';

Q-7 Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based on the tables.

Table : VEHICLE

CODE	VTYPE	PERKM
101	VOLVO BUS	160
102	AC DELUXE BUS	150
103	ORDINARY BUS	90
105	SUV	40
104	CAR	20

Note : PERKM is Freight Charges per kilometer , VTYPE is Vehicle Type

Table : TRAVEL

NO	NAME	TDATE	KM	CODE	NOP
101	Janish Kin	2015-11-13	200	101	32
103	Vedika Sahai	2016-04-21	100	103	45
105	Tarun Ram	2016-03-23	350	102	42
102	John Fen	2016-02-13	90	102	40
107	Ahmed Khan	2015-01-10	75	104	2
104	Raveena	2016-05-28	80	105	4

- NO is Traveller Number
- KM is Kilometer travelled
- NOP is number of travellers travelled in vehicle
- TDATE is Travel Date

(i) To display NO, NAME, TDATE from the table TRAVEL in descending order of NO.

(ii) To display the NAME of all the travellers from the table TRAVEL who are travelling by vehicle with code 101 or 102.

(iii) To display the NO and NAME of those travellers from the table TRAVEL who travelled between '2015-12-31' and '2015-04-01'.

(iv) To display all the details from table TRAVEL for the travellers, who have travelled distance more than 100 KM in ascending order of NOP.

(v) SELECT COUNT (*), CODE FROM TRAVEL GROUP BY CODE HAVING COUNT(*)>1;

(vi) SELECT DISTINCT CODE FROM TRAVEL;

(vii) SELECT A.CODE,NAME,VTYPE FROM TRAVEL A, VEHICLE B WHERE A.CODE=B.CODE AND KM<90;

Q-8 Consider the following relations MobileMaster & MobileStock:-

MobileMaster

M_Id	M_Company	M_Name	M_Price	M_Mf_Date
MB001	Samsung	Galaxy	4500	2013-02-12
MB003	Nokia	N1100	2250	2011-04-15
MB004	Micromax	Unite3	4500	2016-10-17
MB005	Sony	XperiaM	7500	2017-11-20
MB006	Oppo	SelfieEx	8500	2010-08-21

MobileStock

S_Id	M_Id	M_Qty	M_Supplier
S001	MB004	450	New Vision
S002	MB003	250	Praveen Gallery
S003	MB001	300	Classic Mobile Store
S004	MB006	150	A-one Mobiles
S005	MB003	150	The Mobile
S006	MB006	50	Mobile Centre

Write the SQL query for questions from (i) to (iv) & write the output of SQL command for questions from (v) to (viii) given below:-

(i) Display the Mobile company, Mobile name & price in descending order of their manufacturing date.

(ii) List the details of mobile whose name starts with „S".
(iii) Display the Mobile supplier & quantity of all mobiles except „MB003".
(iv) To display the name of mobile company having price between 3000 & 5000.
(v) SELECT M_Id, SUM(M_Qty) FROM MobileStock GROUP BY M_Id;
(vi) SELECT MAX(M_Mf_Date), MIN(M_Mf_Date) FROM MobileMaster;
(vii) SELECT M1.M_Id, M1.M_Name, M2.M_Qty, M2.M_Supplier FROM MobileMaster M1, MobileStock M2 WHERE M1.M_Id=M2.M_Id AND M2.M_Qty>=300;
(viii) SELECT AVG(M_Price) FROM MobileMaster;

Q9. Observe the following table and answer the parts (i) and(ii) accordingly

Table:Product

Pno	Name	Qty	PurchaseDate
101	Pen	102	12-12-2011
102	Pencil	201	21-02-2013
103	Eraser	90	09-08-2010
109	Sharpener	90	31-08-2012
113	Clips	900	12-12-2011

(i) Write the names of most appropriate columns, which can be considered as candidate keys.
(ii) What is the degree and cardinality of the above table?

Q-10 Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to(viii), which are based on the tables.

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

(i) Display the Trainer Name, City & Salary in descending order of their Hiredate.
(ii) To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.
(iii) To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000.
(iv) To display number of Trainers from each city.
(v) SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT IN('DELHI', 'MUMBAI');
(vi) SELECT DISTINCT TID FROM COURSE;
(vii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVING COUNT(*)>1;
(viii) SELECT COUNT(*), SUM(FEES) FROM COURSE WHERE STARTDATE< '2018-09-15';

QUESTONS : MORE ON SQL

Answer-1 Define the terms:

I. PRIMARY KEY : It is a key/attribute or a set of attributes that can uniquely identify tuples within the relation.

II. CANDIDATE KEY : All attributes combinations inside a relation that can serve as primary key are candidate key as they are candidates for being as a primary key or a part of it.

III. RELATIONAL ALGEBRA : It is the collections of rules and operations on relations(tables). The various operations are selection, projection, Cartesian product, union, set difference and intersection, and joining of relations.

IV. DOMAIN : it is the pool or collection of data from which the actual values appearing in a given column are drawn.

Answer-2

Ans1**. Data Definition Language (DDL):** This is a category of SQL commands. All the commands which are used to create, destroy, or restructure databases and tables come under this category. Examples of DDL commands are - CREATE, DROP, ALTER.

Data Manipulation Language (DML): This is a category of SQL commands. All the commands which are used to manipulate data within tables come under this category. Examples of DML commands are - INSERT, UPDATE, DELETE.

Ans 2: A constraint is a condition or check application on a field or set of fields.
Example: NOT NULL (ensure that column con not have null value),
CHECK (make sure that all value satisfies certain criteria),
UNIQUE (ensure that all values in a column are different) etc.

Ans 3: Single Row Function work with a single row at a time. A single row function returns a result for every row of a quired table
Examples of Single row functions are Sqrt( ), Concat( ), Lcase( ), Upper( ), Day( ), etc.

Ans 4. The CHAR data-type stores fixed length strings such that strings having length smaller than the field size are padded on the right with spaces before being stored.
The VARCHAR on the other hand supports variable length strings and therefore stores strings smaller than the field size without modification.

Ans 5: WHERE clause is used to select particular rows that satisfy the condition where having clause is used in connection with the aggregate function GROUP BY clause.
FOR EXAMPLE- select * from student where marks >80;
Select * from student group by stream having marks>90;

Ans 6: i) 100001 ii)No output

Ans 7: Degree 3 and Cardinality=10

Ans 8. COMMIT command permanently saves the changes made during the transacation execution. ROLLBACK command undoes the changes made during transaction execution.

Ans9: DISTINCT

Ans 10: curdate() returns the current date whereas date() extracts the date part of a date.

Answer-3

(i) SELECT GameName, Gcode FROM GAMES;
(ii) SELECT * FROM GAMES WHERE PrizeMoney>7000;
(iii) SELECT * FROM GAMES ORDER BY ScheduleDate;
(iv) SELECT SUM(PrizeMoney),Number FROM GAMES GROUP BY Number;
(v) 2
(vi) 19-Mar-2004 12-Dec-2003
(vii) 59000
(viii) 101
103
108

Answer-4

(i) Select * from faculty where salary > 12000;

(ii) Select * from Courses.where fees between 15000 and 50000;

(iii) Select * from faculty fac, courses cour where fac.f_id = cour.f_id and fac.fname = 'Sulekha' order by cname desc;

(iv) 4

(vi)

Amit	Grid Computing
Rakshit	Computer Security
Rashmi Sulekha	Visual Basic Human Biology

Answer-5.

a. SELECT NAME from GRADUATE where DIV = 'I' order by NAME;

b. SELECT NAME,STIPEND,SUBJECT, STIPEND*12 from GRADUATE;

c. SELECT SUBJECT,COUNT(*) from GRADUATE group by SUBJECT having SUBJECT='PHYISCS' or SUBJECT='COMPUTER SC';

d. INSERT INTO GRADUATE values(11,'KAJOL',300,'COMPUTER SC',75,1);

e. (i) 63
(ii) 800
(iii) 475
(iv) 4

Answer-6

a. SELECT sendername from Sender where sendercity='Mumbai';

b. Select R.RecIC, S.Sendername, S.SenderAddress, R.RecName, R.RecAddress from Sender S, Recepient R where S.SenderID=R.SenderID ;

c. SELECT * from Recipent ORDER By RecName;

d. SELECT COUNT(*) from Recipient Group By RecCity;

e)

SenderCity
Mumbai
New Delhi

f)

A.SenderName	B.RecName
R Jain	H Singh
S Jha	P K Swamy

g)

RecName	RecAddress
S Mahajan	116, A Vihar
S Tripathi	13, BID, Mayur Vihar

h)

RecID	RecName
ND08	S Mahajan
ND48	STripathi

Answer-7

i. SELECT NO, NAME, TDATE FROM TRAVEL ORDER BY NO DESC;

ii. SELECT NAME FROM TRAVEL WHERE CODE='101' OR CODE='102';
OR
SELECT NAME FROM TRAVEL WHERE CODE IN (101,102);

iii. SELECT NO, NAME from TRAVEL
WHERE TDATE >= '2015-04-01' AND TDATE <= '2015-12-31';
OR
SELECT NO, NAME from TRAVEL
WHERE TDATE BETWEEN '2015-04-01' AND '2015-12-31';

iv. SELECT * FROM TRAVEL WHERE KM > 100 ORDER BY NOP;

iv. SELECT * FROM TRAVEL WHERE KM > 100 ORDER BY NOP;

vi.

count(*)	code
2	101
2	102

vii.

DISTINCT CODE
101

102
103
104
105

viii.

Code	Name	Vtype
104	Ahmed Khan	Car
105	Raveena	Suv

Answer-7

i. SELECT M_Compnay, M_Name, M_Price FROM MobileMaster
ORDER BY M_Mf_Date DESC;

ii. SELECT * FROM MobileMaster WHERE M_Name LIKE "S%";

iii. SELECT M_Supplier, M_Qty FROM MobileStock WHERE M_Id <> 'MB003';

iv. SELECT M_Company FROM MobileMaster WHERE M_Price

v.

M_Id	SUM(M_Qty)
MB004	450
MB003	400
MB001	300
MB006	200

vi.

MAX(M_Mf_Date)	MIN(M_Mf_Date)
2017-11-20	2010-08-21

vii.

M_Id	M_Name	M_Qty	M_Supplier
MB004	Unite3	450	New_Vision
MB001	Galaxy	300	Classic Mobile Store

viii. 5450

Answer-9

i) Candidate Key: Pno, Name

ii) Degree:4 Cardinality:5

Answer-10

(i) SELECT TNAME, CITY, SALARY FROM TRAINER ORDER BY HIREDATE;

(ii) SELECT TNAME, CITY FROM TRAINER
WHERE HIREDATE BETWEEN '2001-12-01' AND '2001-12-31';

(iii) SELECT TNAME,HIREDATE,CNAME,STARTDATE FROM TRAINER, COURSE
WHERE TRAINER.TID=COURSE.TID AND FEES<=10000;

(iv) SELECT CITY, COUNT(*) FROM TRAINER GROUP BY CITY;

(v) SELECT TID, TNAME, FROM TRAINER WHERE CITY NOT IN('DELHI','MUMBAI');

(vi)

TID	TNAME
103	DEEPTI
106	MANIPRABHA

(vii) DISTINCT TID
101
103
102
104
105

(viii)

TID	Count(*)	Min(Fees)
101	2	12000

(ix)

Count(*)	sum(Fees)
4	65000

QUESTION : PYTHON WITH SQL

Q1. What is MySQLdb?

Q2. What is resultset?

Q3. What is database cursor?

Q4. What is database connectivity?

Q5. Which function do use for executing a SQL query?

Q6. Which package must be imported to create a database connectivity application?

Q7. Differentiate between fetchone() and fetchall()

Q8. How we can import MYSQL database in python?

Q9. Write a small python program to insert a record in the table books with attributes (title, isbn).

Q.10 Write a small python program to retrieve all record from the table books with attributes (title ,isbn).

SOLUTIONS : PYTHON WITH SQL

A1. MySQLdb is an open-source freely available relational database management system that uses Structured Query Language. Now one of the most important question here is "What is SQL?"
SQL (Structured Query Language) is a standard language for relational databases that allow users to do various operations on data like, Manipulating, Creating, Dropping, etc. In a nutshell, SQL allows you to do anything with the data.

A2. Result set refers to a logical set of records that are fetched from the database by executing a query.

A3. Database cursor is a special control structure that facilitates the row by row processing of records in the result set

A4. Database connectivity refers to connection and communication between an application and a database system.

A5. Cursor. execute(sql query)

A6. Mysql.connector

A7. **fetchone() –** It fetches the next row of a query result set. A result set is an object that is returned when a cursor object is used to query a table.
fetchall() – It fetches all the rows in a result set. If some rows have already been extracted from the result set, then it retrieves the remaining rows from the result set.

A8. Use the mysql.connector.connect() method of MySQL Connector Python with required parameters to connect MySQL. Use the connection object returned by a connect() method to create a cursor object to perform Database Operations. The cursor.execute() to execute SQL queries from Python.

A9.
```
import mysql.connector as Sqlator
conn =sqlator.connect(host="localhost",user="root",passwd="",database="test")
cursor=con.cursor()
query="INSERT into books(title,isbn) values('{}'{})".format('Neelesh','5143')
cursor.execute(query)
con.close()
```

A10. import mysql.connector as Sqlator

```
conn =sqlator.connect(host="localhost",user="root",passwd="",database="test")
cursor=con.cursor()
query="select * from query"
cursor.execute(query)
data=cursor.fetchall()
for row in data:
        print(row)
conn.close()
```

QUESTIONS: SOCIETY LAW AND ETHICS

1. What are intellectual propery rights?
2. What is Plagiarism?
3. What is open source softwares?
4. What are the privacy laws in IT ?
5. What is Cyber Crime and cyber security?
6. What is the difference between Phishing and Vishing ?
7. What is child pornography?
8. What do you mean by cyber scam and how to avoid it?
9. What is W-waste management?
10. What are the biometrics devices? What do you mean by internet as an echo chamber?

SOLUTIONS: SOCIETY LAW AND ETHICS

1. **Intellectual property rights** are the **rights** given to persons over the creations of their minds. They usually give the creator an exclusive **right** over the use of his/her creation for a certain period of time12.

2. **Plagiarism** is the "wrongful appropriation" and "stealing and publication" of another author's "language, thoughts, ideas, or expressions" and the representation of them as one's own original work. **Plagiarism** is considered academic dishonesty and a breach of journalistic ethics.

3. Open-source software is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to study, change, and distribute the software to anyone and for any purpose. Open-source software may be developed in a collaborative public manner.

4. Privacy law refers to the laws that deal with the regulation, storing, and using of personally identifiable information of individuals, which can be collected by governments, public or private organisations, or other individuals.

   Privacy laws are considered within the context of an individual's privacy rights or within reasonable expectation of privacy.

5. The **crime** that involves and uses computer devices and Internet, is known as **cybercrime**. **Cybercrime** can be committed against an individual or a group; it can also be committed against government and private organizations. It may be intended to harm someone's reputation, physical harm, or even mental harm.

6. Voice **phishing**, or "**vishing**", works the same way as a spear **phishing** attack (by using personalized information to leverage trust), but uses a different channel: the telephone. The

scammer calls an individual, pretending to be calling for a trusted organization (like the bank or your credit card company).

7. *child pornography* means

(a) a photographic, film, video or other visual representation, whether or not it was made by electronic or mechanical means,
   - (i) that shows a person who is or is depicted as being under the age of eighteen years and is engaged in or is depicted as engaged in explicit sexual activity, or
   - (ii) the dominant characteristic of which is the depiction, for a sexual purpose, of a sexual organ or the anal region of a person under the age of eighteen years;

(b) any written material, visual representation or audio recording that advocates or counsels sexual activity with a person under the age of eighteen years that would be an offence under this Act;

8. Cybercriminals are constantly looking for ways to make money at your expense. Individuals and organisations often fall prey to frauds that involve various forms of social engineering techniques, where the information required is garnered from a person rather than breaking into a system.

IT CAN BE AVOIDED BY FOLLOWING:

- Check your online accounts regularly.
- Check your bank account regularly and report any suspicious activity to your bank.
- Perform online payments only on secure websites (check the URL bar for the padlock and https) and using secure connections (choose a mobile network instead of public Wi-Fi).
- Your bank will never ask you for sensitive information such as your online account credentials over the phone or email.
- If an offer sounds too good to be true, it's almost always a scam.
- Keep your personal information safe and secure.
- Fraudsters can use your information and pictures to create a fake identity or to target you with a scam.

9. *Waste management* (or *waste disposal*) are the activities and actions required to *manage waste* from its inception to its final *disposal*. This includes the *collection*, transport, *treatment* and *disposal* of *waste*, together *with* monitoring and regulation of the *waste management* process.

10. A **biometric device** is a security identification and authentication **device**. Such **devices** use automated methods of verifying or recognising the identity of a living person based on a physiological or behavioral characteristic. These characteristics include fingerprints, facial images, iris and voice recognition.

echo chamber refers to the overall phenomenon by which individuals are exposed only to information from like-minded individuals, while filter bubbles are a result of algorithms that choose content based on previous **online** behavior, as with search histories or **online** shopping activity.

FREQUENTLY ASKED QUESTIONS (FAQ) WITH ANSWERS

Frequently Asked Questions (FAQs)

Unit- 1

Very Short Answer Type Questions (1 mark)

Q1. Name the Python Library modules which need to be imported to invoke the following functions :
(i) load ()
(ii) pow ()
(iii) Uniform ()
(iv) fabs ()
(v) sqrt()
(vi)dump()
(vii)ceil()
(viii)randrange()

Ans:
(i)pickle
(ii)math
(iii)random ()
(iv)math ()
(v)math
(vi) pickle
(vii) math
(viii) random()

Q2. Which of the following is not a valid identifier name in Python? Justify reason for it not being a valid name.
a) 5Total b) _Radius c) pie d)While
Ans: a) 5Total Reason : An identifier cannot start with a digit.

Q3. Find the invalid identifier from the following
a) def b)For c)_bonus d)First_Name
Ans: a)def : keyword cannot be used as a identifier name.
Q4. Find the invalid identifier from the following:
a) Subtotal b) assert c) temp_calc d) Name2

Ans: b)assert : keyword cannot be used as a identifier name.

Q5. Identify the valid declaration of L: L = [1, 23, 'hi', 6]
(i)list (ii)dictionary (iii)array (iv)tuple
Ans (i) list

Q6. Identify the valid arithmetic operator in Python from the following.
a) ? b) < c) ** d) and
Ans: c) **

Q7. Which of the following are valid operator in Python:
(i) */ (ii) is (iii) $ (iv) like
Ans: (ii) is

Q8. Which of the following are Keywords in Python ?
(i) break (ii) Check (iii) For (iv) while
Ans: (i) break ((iii) while

Q9. Write the type of tokens from the following:
(i) None (ii) Roll_No

Q10. Given the lists L=[23,21,45,76,44,89,76] , write the output of print(L[2:5])
Ans:- [45,76,44]
Q11. What will be the result of the following code?
>>>d1 = {"abc" : 5, "def" : 6, "ghi" : 7}
>>>print (d1[0])
(a) abc (b) 5 (c) {"abc":5} (d) Error
Ans: (d) Error

Q12**.** Suppose a tuple T1 is declared as T1 = (10, 20, 30, 40, 50)
Which of the following is incorrect?
a) print(T[1]) b) T[2] = -29 c) print(max(T)) d) print(len(T))
Ans: b) T[2] = -29, Reason: Tuple is immutable data type.

Short Answer Type Questions (2 Marks)

Q1. Evaluate the following expressions:
a) 12*(3%4)//2+6
b) not 12 > 6 and 7 < 17 or not 12 < 4
c) 2 ** 3 ** 2
d) 7 // 5 + 8 * 2 / 4 – 3
Ans: a) 24 b) True c)512 d)2.0
Q2. If given A=2,B=1,C=3,What will be the output of following expressions:
(i) print((A>B) and (B>C) or(C>A))
(ii) print(A**B**C)
Ans: (i) True (ii) 2

Q3. What do you understand by local and global scope of variables? How can you access a global variable inside the function, if function has a variable with same name.
Ans:
Variables that are defined inside a function body have a local scope, and those defined outside have a global scope. This means that local variables can be accessed only inside the function in which they are declared, whereas global variables can be accessed throughout the program body by all functions.
Ex:
Local Scope: A variable created inside a function is available inside that function:

```
def myfunc():
    x = 300
    print(x)
myfunc()
```

Global Scope: A variable created in the main body of the Python code is a global variable and belongs to the global scope. Global variables are available from within any scope, global and local.

```
x = 300
def myfunc():
     print(x)
     myfunc()
     print(x)
```

If your function has a local variable with same name as global variable and you want to modify the global variable inside function then use '**global**' keyword before the variable name.

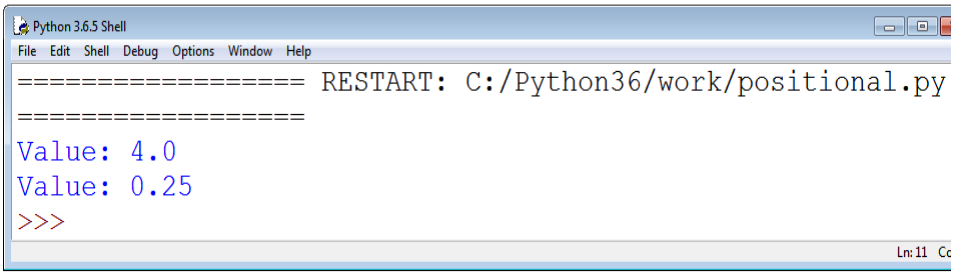
Q4. Explain with a code about Positional arguments, Keyword arguments and Default arguments.

Ans: **Positional parameters:**

These are the arguments which are passed in correct positional order in function.
When we pass the values during the function call, they are assigned to the respective arguments according to their position.

Following program illustrate the use of positional parameters

```
def fun(x,y):
    print('Value:',x/y)

#Function call
fun(12,3)
fun(3,12) #Now change the position of arguments
```

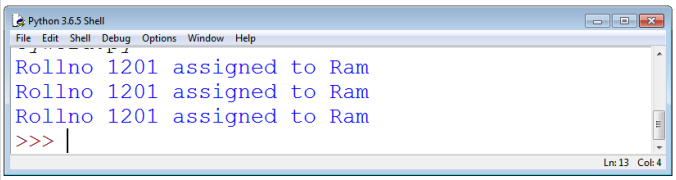


If we change the position of the arguments, then the answer will be changed.

Keyword argument:

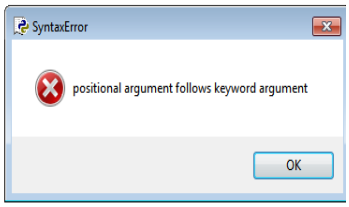
When we call a function with some values, these values get assigned to the arguments according to their position. If a function has many arguments and we want to change the sequence of them then we have to use keyword arguments.
See the following program where whenever we pass the values to the function then we pass the values with the argument name :

```
def display(roll,name):
    print('Rollno',roll,'assigned to',name)

#function call
display(roll=1201,name='Ram')#case 1

display(name='Ram',roll=1201)#case 2

display(1201,name='Ram')     #case 3
```



But we must keep in mind that keyword arguments must follow positional arguments.
Having a positional argument after keyword arguments will result in errors. For example, the function calls as follows:

```
def display(roll,name):
    print('Rollno',roll,'assigned to',name)

#function call
display(roll=1201,'Ram')
```



A default argument is an argument that assumes a default value if a value is not provided in the function call for that argument. In other words, a parameter having default value in the function header is known as a default parameter.

Python allows function arguments to have default values. If the function is called without the argument, the argument gets its default value.
These are the values which are used by the function for any specific task.

Python Program of default argument:

```
def SimpInt(P,R,T=3):
    SI=(P*R*T)/100
    print('Simple Interest= ',SI)


SimpInt(1200,4,5) #Passing values for all arguments
SimpInt(1200,4)   #Missiong the value for last argument
         #Value for argument T will be assumed default value
```

```
t.py ====================
Simple Interest=  240.0
Simple Interest=  144.0
>>>
```

In the above program when the value is provided to parameter T, it will overwrite the default value (see the first function call).When the value is not provided, the argument gets its default value (see in the second function call, value for third parameter is not provided, so it will get the default value T=3).

Any number of arguments in a function can have a default value. But once we have a default argument in a function header, all the arguments to its right must also have default values. This means to say, non-default arguments cannot follow default arguments.

Q5. Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.

```
p=30
for c in range(0,p)
    If c%4==0:
        print (c*4)
    elseif c%5==0:
        print (c+3)
    else
        print(c+10)
```

Ans:

```
p=30
for c in range(0,p):                    Error 1
    if c%4==0:                          Error 2
        print (c*4)
    elif c%5==0:                        Error 3
        print (c+3)
    else:                               Error 4
        print(c+10)
```

Q6. Rewrite the following code in python after removing all syntax errors. Underline each correction done in the code:

```
Def func(a):
    for i in (0,a):
        if i%2 =0:
            s=s+1
        else if i%5= =0
            m=m+2
        else:
            n=n+i
print(s,m,n)
func(15)
```

Ans:

```
def  func(a):                       Error 1
    for i in range(0,a):            Error 2
        if i%2 ==0:                 Error 3
            s=s+1
        elif i%5= =0                Error 4
            m=m+2
        else:
            n=n+i
print(s,m,n)
func(15)
```

Q7.What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code. Select which option/s is/are correct

```
import random
print(random.randint(15,25) , end=' ')
print((100) + random.randint(15,25) , end = ' ' )
print((100) -random.randint(15,25) , end = ' ' )
print((100) *random.randint(15,25) )
```

(i) 15 122 84 2500 (ii) 21 120 76 1500

(ii) (iii) 105 107 105 1800 (iv) 110 105 105 1900

Ans: (i) and (ii) are correct answers

Hint:- random.randrange(15,25) function returns all numbers between 15 to 25 (including both)

Q8. What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable End.

```
import random
Colours = ["VIOLET","INDIGO","BLUE","GREEN", "YELLOW","ORANGE","RED"]
End = randrange(2)+3
Begin = randrange(End)+1
for i in range(Begin,End):
        print(Colours[i],end="&")
```

(i) INDIGO&BLUE&GREEN& (ii) VIOLET&INDIGO&BLUE&
(ii) BLUE&GREEN&YELLOW& (iv) GREEN&YELLOW&ORANGE&

Ans: (i) INDIGO&BLUE&GREEN&
Minimum Value of End = 3 Maximum Value of End = 4

Q9. Write a statement in Python to declare a dictionary whose keys are 1,2,3 and values are Monday, Tuesday and Wednesday respectively.
Ans:
Dict1 = { 1:'Monday', 2:'Tuesday', 3: 'Wednesday' }

Q10.Differentiate between actual parameters and formal parameters with suitable example:
Ans:
The list of identifiers used in a function call is called actual parameter(s) whereas the list of parameters used in the function definition is called formal parameter(s).

Actual parameter may be value / variable or expression.
Formal parameter is an identifier.
Example:

```
def area(side):                 # line 1
    return side*side;
print(area(5))                  # line 2
```

In line 1, side is the formal parameter and in line 2, while invoking area() function, the value 5 is the actual parameter.

Long Answer Questions: (3 Marks)

Q1. Write a function DisplayHeShe() in python that counts the number of 'He' or She' words present in a text file 'Text.txt'
Ans:

```
def displayHeShe():
    num=0
    f=open("Text.txt","r")
    N=f.read()
    M=N.split()
    for x in M:
        if x=="He" or x== "She":
```

```
            print(x)
            num=num+1
        f.close()
        print("Count of He/She in file:",num)
```

Q2. Write a method in python to read lines from a text file DIARY.TXT and display those **lines which start with the alphabets 'P'**.

Ans:

```
def display ():
        file = open("DIARY.txt" , "r")
        lines = file.readlines()
        for l in lines:
                if l[0]== "p" or l[0] == "P":
                        print(l)
        file.close()
```

Q3. Write a function DISPLAYWORDS() in python to display the count of words starting with "t" or "T"in a text file 'STORY.TXT'.

Ans:

```
def DISPLAYWORDS():
        count=0
        file=open('STORY.TXT','r')
        line = file.read()
        word = line.split()
        for w in word:
                if w[0]=="T" or w[0]=="t":
                count=count+1
        file.close()
        print(count)
```

Q4.Write a method/function SHOW_TODO() in python to read contents from a text file ABC.TXT and display those lines which have occurrence of the word ''TO'' or ''DO''.

For example : If the content of the file is:

"THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT OF HARD WORK. WE ALL ARE EXPECTED TO DO HARD WORK. AFTER ALL EXPERIENCE COMES FROM HARDWORK."

The method/function should display:

THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT•

OF HARD WORK. WE ALL ARE EXPECTED TO DO HARD WORK.•

Ans:

```
f = open("demo.txt",'r')
linelist = f.readlines()
for ln in linelist:
   if 'To' in ln or 'Do' in ln:
      print(ln)          # print a single line
f.close()
```

Q5.Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented using a list. Display the stack if it has at least one element, otherwise display appropriate error message.

Ans:

```
def PUSH(Arr):
        s=[]
        for x in range(0,len(Arr)):
                if Arr[x]%5==0:
                        s.append(Arr[x])
                        if len(s)==0:
                                print("Empty Stack")
                        else:
        print(s)
```

Q6. Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.

Ans:

```
def popStack(st) :                  # If stack is empty
        if len(st)==0:
                print("Underflow")
        else:
                L = len(st)
                Val = st[L-1]
                print("Deleted item is:", val)
                return (st.pop(L-1) )
```

Q7. Write a function in python, **PushEl(e)** to add a new element and **PopEl(e)** to delete a element from a List ,considering them to act as push and pop operations of the Stack data structure

Ans:

```
def  PushEl(element):
        a=int(input("enter element : "))
        element.append(a)
        print("Element added successfully")
def  PopEl(element):
        if (element==[]):
           print( "Stack empty")
        else:
          print ("Deleted element:", element.pop())
```

Long Answer Questions: (4/5 Marks)

Q1. Rahul of class 12 is writing a program to create a CSV file "student.csv". He has written the following code to read the content of file 'student.csv' and display the employee record whose name begins from 'S' also show no. of student with first letter 'S' out of total record. As a programmer, help him to successfully execute the given task. Consider the following CSV file (student.csv):

101,Mahak,3500
102,Ajay,4000
103,Suman,5000

104,Arnavi,2500
105,Smriti,4200

```
import _________                                    # Line 1
def SNAMES():
        with open(__________) as csvfile:           # Line 2
        myreader = csv._______(csvfile, delimiter=',')   # Line 3
        count_rec=0
        count_=0
        for row in myreader:
                if row[1][0].lower()=='S':
                        print(row[0],',',row[1],',',row[2])
                        count_s+=1
                        count_rec+=1
        print("Number of 'S' names are ",count_s,"/",count_rec)
```

(a) Name the module he should import in Line 1
(b) In which mode, Rahul should open the file to print data.
(c) Fill in the blank in Line 2 to open the file.
(d) Fill in the blank in Line3 to read the data from a csv file.
(e) Write the output he will obtain while executing the above program

Ans: (a)csv
(b) read mode
(c) 'student.csv'
(d) reader
(e) 103,Suman,5000
105,Smriti,4200
Number of 'S' names are 2/5.

Q2. A binary file “Items.dat” has structure as [Code, Description, Price].
(i). Write a user defined function MakeFile( ) to input multiple items from the user and add to Items.dat
(ii). Write a function SearchRec(Code) in Python which will accept the code as parameter and search and display the details of the corresponding code on screen from Items.dat
Ans:
(i) import pickle as p

```
def MakeFile( ):
        f = open (“Items.dat”, “ab”)
        Item = [ ]
        ans = ‘y’
        while ans == ‘y’:
            code = input(“Enter Item Code :”)
            desc = input(“Enter description :”)
            price = float(input(“Enter price:”))
            Item.append ( [code,desc,price] )
            ans = input(“Add more record? (y/n) :”)
           p.dump( Item,f )
        f.close( )
```

(ii)
```
def SearchRec(code):
    f = open("Items.dat", "rb")
    Item = [ ]
    found = False
    while True:
        try:
            Item = p.load(f)
        except:
            break
    for e in Item:
        if e[0] == code :
            print(e[0],"\t",e[1],"\t",e[2])
            found = True
            break
    if found == False:
        print("No such record")
```

Unit- 2

Very Short Answer Type Questions (1 mark)

Q1. Give one example of each – Guided media and Unguided media.
Ans: Guided – Twisted pair, Coaxial Cable, Optical Fiber (any one)
Unguided – Radio waves, Satellite, Micro Waves (any one)
Q2. Name the protocol that is used to transfer file from one computer to another.
Ans:FTP
Q3.Raj is a social worker, one day he noticed someone is writing insulting or demeaning comments on his post. What kind of Cybercrime Raj is facing?
Ans: Cyber stalking.
Q4. Name the transmission media best suitable for connecting to desert areas.
Ans: Microwave
Q5. Rearrange the following terms in increasing order of speedy medium of data transfer:
Telephone line, Fiber Optics, Coaxial Cable, Twisted Paired Cable.
Ans: Telephone line, Twisted Pair Cable, Coaxial Cable, Fiber Optics.
Q6.Which of the following appears harmless but actually performs malicious functions such as deleting or damaging files.
(a) WORM (b)Virus (c) Trojan Horse (d)Malware
Ans: (c) Trojan Horse
Q7. Name the transmission media suitable to establish PAN.
Ans: Bluetooth, infra red
Q8. Name the protocol that is used to upload and download files on internet.
Ans: FTP or HTTP
Q9.Name the protocol that is used to send emails.
Ans:-SMTP
Q10. Name the protocol that is used to receive emails.
Ans:-POP
Q11. Name the transmission media best suitable for connecting to hilly areas.
Ans: Microwave / Radio wave.

Q12. An attack that encrypts files in a computer and only gets decrypted after paying money to the attacker..

a) Botnet b) Trojan **c) Ransomware** d) Spam

Ans: c) Ransomware

Q13. Name the fastest available transmission media.

Ans: OFC (Optical Fiber Cable)

Short Answer Type Questions (2 mark)

Q1. Expand the following terms:

IPR – Intellectual Property Rights
SIM – Subscriber's Identity Module
IMAP – Internet Message Access Protocol
HTTP – Hyper text transfer Protocol
URL - Uniform Resource Locator
POP3-Post office protocol ver. III
SMTP- Simple Mail Transfer Protocol
VOIP- Voice over internet Protocol
TCP- Transmission control protocol
Wi-Fi - Wireless Fidelity
GPRS – General Packet Radio Service
IRC – Internet Relay Chat
CDMA- Code Division Multiple Access
TDMA- Time Division Multiple Access
VPN- Virtual Private Network
FLOSS- Free Libre Open Source Software
XML-Extensible Markup Language
SMS–Short Messaging Service
GSM-Global system for mobile communication
PHP- Hypertext Preprocessor
FTP- File Transfer Protocol
DHCP-Dynamic Host Configuration Protocol

Q2. Ravi has purchased a new Smart TV and wants to cast a video from his mobile to his new Smart TV. Identify the type of network he is using and explain it.

Ans: Ravi is using PAN-Personal Area Network. It is a private network which is setup by an individual to transfer data among his personal devices of home.

Q3.Differentiate between Virus and worms.

Ans: Viruses require an active host program or an already-infected and active operating system in order for viruses to run, cause damage and infect other executable files or documents.

Worms are stand-alone malicious programs that can self-replicate.

Q4.Your friend Rakesh complaints that somebody accessed his mobile device remotely and deleted the important files. Also he claims that the password of his social media accounts were changed. Write a the name of crime?

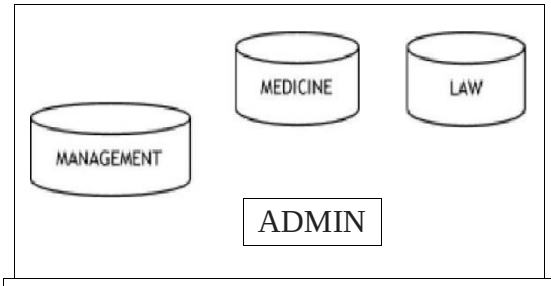
Ans: The gaining of unauthorized access to data in a system or computer is termed as hacking. It can be classified in two ways: (i) Ethical Hacking (ii)Cracking

Q5. What is the difference between hub and switch? Which is more preferable in a large network of computers and why?

Ans: Hub forwards the message to every node connected and create a huge traffic in the network hence reduces efficiency whereas a Switch (also called intelligent hub) redirects the received information/ packet to the intended node(s).
In a large network a switch is preferred to reduce the unwanted traffic in the network. It makes the network much more efficient.
Q6.Differentiate between web server and web browser. Write any two popular web browsers.
Ans: Web Browser : A web browser is a software application for accessing information on the World Wide Web. When a user requests a web page from a particular website, the web browser retrieves the necessary content from a web server and then displays the page on the user's device.
Web Server : A web server is a computer that runs websites. The basic objective of the webserver is to store, process and deliver web pages to the users. This intercommunication is done using Hypertext Transfer Protocol (HTTP).
Popular web browsers: Google Chrome, Mozila Firefox, Internet Explorer etc.

Long Answer Type Questions (5 marks)

Q1. Prithvi Training Institute is planning to set up its center in Jaipur with four specialized blocks for Medicine, Management, Law courses along with an Admission block in separate buildings. The physical distances between these blocks and the number of computers to be installed in these blocks are given below. You as a network expert have to answer the queries raised by their board of directors as given in (i) to (v).



Shortest distances between various locations in meters:

Admin Block to Management Block	60
Admin Block to Medicine Block	40
Admin Block to Law Block	60
Management Block to Medicine Block	50
Management Block to Law Block	110
Law Block to Medicine Block	40

Number of Computers installed at various locations are as follows:

Admin Block	150
Management Block	70
Medicine Block	20
Law Block	50

i. Suggest the most suitable location to install the main server of this institution to get efficient connectivity.
ii. Suggest by drawing the best cable layout for effective network connectivity of the blocks having server with all the other blocks.

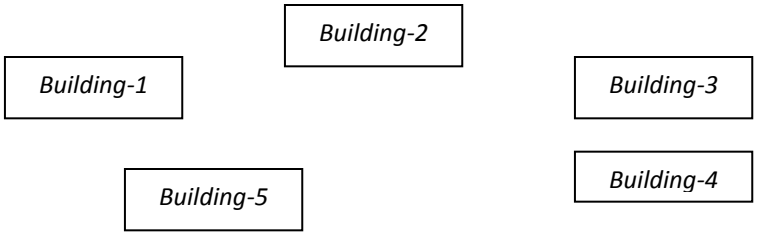
iii. Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following:
Modem, Switch, Gateway, Router

iv. Suggest the most suitable wired medium for efficiently connecting each computer installed in every building out of the following network cables:
Coaxial Cable, Ethernet Cable, Single Pair, Telephone Cable

v. Suggest the type of implemented network.

Ans (i) Admin Block. Maximum Computers.
(ii)Any Suitable layout
(iii)Switch
(iv)Ethernet cable
(v)LAN

Q2.
PVS Computers decided to open a new office at Ernakulum, the office consist of Five Buildings and each contains number of computers. The details are shown below.



Distance between the buildings

Building 1 and 2	20 Meters
Building 2 and 3	50 Meters
Building 3 and 4	120 Meters
Building 3 and 5	70 Meters
Building 1 and 5	65 Meters
Building 2 and 5	50 Meters

Building	No of computers
1	40
2	45
3	110
4	70
5	60

Computers in each building are networked but buildings are not networked so far. The Company has now decided to connect building also.
(i) Suggest a cable layout for connecting the buildings
(ii) Do you think anywhere Repeaters required in the campus? Why
(iii) The company wants to link this office to their head office at Delhi
(a) Which type of transmission medium is appropriate for such a link?
(b) What type of network would this connection result into?
(iv) Where server is to be installed? Why?
(v) Suggest the wired Transmission Media used to connect all buildings efficiently.

Ans:-
(i) Any efficient layout with shortest Wire length
(ii) Between 3 and 4 due to larger distance
(iii) (a) Wireless
(b) WAN
(iv) Building-3 due to maximum no of Computers
(v) Co- axial cable or fiber optics

Unit- 3

Very Short Answer Type Questions (1 mark)

Q1. Differentiate between Degree and Cardinality.
Ans: Degree – it is the total number of columns/attributes in the table.
Cardinality – it is the total number of tuples/Rows in the table.
Q2. Which command is used to change the number of columns in a table?
Ans: ALTER
Q3. Which command is used to change the existing information of table?
Ans:UPDATE
Q4. Write an Aggregate function that is used in MySQL to find No. of Rows in the database Table.
Ans: count(*)
Q5. For each attribute of a relation, there is a set of permitted values, called ……of that attribute.
a. Dictionaries b. Domain c. Directory d. Relation
Ans: b. Domain
Q6. In SQL, write the query to display the list of databases stored in MySQL.
Ans:show databases
Q7. Which is **not** a constraint in SQL?
a) Unique b) Distinct c) Primary key d) check
Ans: b) Distinct
Q8. Which command is used to see the structure of the table/relation?
a) view b) describe c) show d) select
Ans*:* b) describe
Q9. Which clause is used to remove the duplicating rows of the table?
i) or ii) distinct iii) any iv)unique
Ans: distinct
Q10. Which clause is used in query to place the condition on groups in MySql?
i) where ii) having iii) group by iv) none of the above
Ans: ii) having
Q11. How many Primary and Foreign keys can a table have?
Ans: Primary Key – 1 Foreign Key – Many
Q12. In SQL, write the name of the aggregate function which is used to calculate & display the average of numeric values in an attribute of a relation.
Ans: AVG()
Q13. Write an SQL query to display all the attributes of a relation named "**TEST"** along with their description.
Ans: DESC TEST / DESCRIBE TEST
Q14. Which of the following is NOT a DML command?
1. SELECT 2. DELETE 3. UPDATE 4. DROP
Ans: 4. DROP
Q15. In SQL, name the command/clause that is used to display the rows in descending order of a column.
Ans: ORDER BY…… DESC
Q16. In SQL, what is the error in following query :
SELECT NAME, SAL, DESIGNATION WHERE DISCOUNT=NULL;
Ans: SELECT NAME,SAL,DESIGNATION WHERE DISCOUNT **IS** NULL
Q17. Write any two aggregate functions used in SQL.
Ans: max(),min(),avg(),count() (any 2)
Q18. Which of the following is a DML command?
a) SELECT b) Update c) INSERT d) All of these

Ans: d) All of these
Q19. Which of the following will suppress the entry of duplicate value in a column?
a) Unique b) Distinct c) Primary Key d) NOT NULL
Ans: b) Distinct
Q20. A non-key attribute, whose values are derived from primary key of some other table.
i. Alternate Key ii. Foreign Key iii. Primary Key iv. Candidate Key
Ans: ii. Foreign Key

Short Answer Type Questions (2 marks)

Q1. What is the difference between Primary Key and Foreign Key?.
Ans: Primary key is used to identify data uniquely therefore two rows can't have the same primary key. It can't be null.
On the other hand, foreign key is used to maintain relationship between two tables. Primary of a table act as forgein key in the other table.

Q2.Differentiate between WHERE and HAVING clause.
Ans: WHERE clause is used to select particular rows that satisfy a condition whereas HAVING clause is used in connection with the aggregate function, GROUP BY clause.
For ex. – select * from student where marks > 75;
This statement shall display the records for all the students who have scored more than 75 marks.
On the contrary, the statement –
select * from student group by stream having marks > 75;
shall display the records of all the students grouped together on the basis of stream but only for those students who have scored marks more than 75.

Q3. Differentiate between DDL and DML with one Example each.
Ans: DDL- Data definition language. Consists of commands used to modify the metadata of a table. For Example- create table, alter table, drop table.
DML-Data manipulation language. Consist of commands used to modify the data of a table. For Example- insert, delete, update
Q4. What do understand by an Alternate key?
Ans: Those candidate keys which are not made the Primary key are called the Alternate keys.
Q5. Answer the following :
i) Name the package for connecting Python with MySQL database.
ii) What is the purpose of cursor object?
Ans: (i) import mysql.connector
ii) It is the object that helps to execute the SQL queries and facilitate row by row processing of records in the resultset.
Q6. How is equi-join different from natural-join? Give example.
Ans: Equi-join : It is a sql join where we use the equal sign as the comparison operator while specifying the join condition. In this, the common column from both the tables will appear twice in the output.
Natural join : It is similar to Equi-join but only one of the identical columns exist in the output.
Example : select * from student, course where course.cid = student.cid; (Equi-join) Select * from student natural join course where course.cid = student.cid; (Natural join)

Q7. Differentiate between fetchone() and fetchmany() methods with suitable examples for each.
Ans: fetchone() is used to retrieve one record at a time but fetchmany(n) will fetch n records at a time from the table in the form of a tuple.

Example: fetchone():

```
cursor.execute("SELECT * FROM employees")
row = cursor.fetchone()
while row is not None:
  print(row)
  row = cursor.fetchone()
```

fetchmany()

```
cursor.execute("SELECT * FROM employees ORDER BY emp_no")
 head_rows = cursor.fetchmany(size=2)
```

Q8. What is the difference between CHAR & VARCHAR data types in SQL? Give an example for each.
Ans: CHAR is used to occupy fixed memory irrespective of the actual values but VARCHAR uses only that much memory which is used actually for the entered values. E.g. CHAR(10) will occupy always 10 bytes in memory no matter how many characters are used in values. But VARCHAR will uses only that much bytes of memory whose values are passed.

Q9. Differentiate between an Attribute and a Tuple in a Relational Database with suitable example.
Ans: Attributes / Field: Columns of the table (Relation) is called as attributes.
Tuple: Rows of the table (relation) is called as a tuple (record).

Q10. Write the full forms of TCL, DML and DDL.
Ans: TCL – Transaction Control Language
DDL – Data Definition Language
DML- Data Manipulation Language.

Long Answer Type Questions (3/4/5 marks)

Q1. Observe the following table and answer the question (a) to (e)

TABLE: VISITOR

VisitorID	VisitorName	ContactNumber
V001	ANAND	9898989898
V002	AMIT	9797979797
V003	SHYAM	9696969696
V004	MOHAN	9595959595

(a) Write the name of most appropriate column which can be considered as Primary key?
(b) Which command will be used to see the Structure of a table Visitor ?
(c) What is the degree and cardinality of the table?
(d) Insert the following data into the attributes VisitorID, VisitorName and ContactNumberrespectively in the given table VISITOR.
VisitorID = "V004", VisitorName= "VISHESH" and ContactNumber=9907607474
(e)Remove the table VISITOR from the database HOTEL. Which command will he used from the following:

a) DELETE FROM VISITOR;
b) DROP TABLE VISITOR;

c) DROP DATABASE HOTEL;
d) DELETE VISITOR FROM HOTEL;

Ans:

(a) VIsitorID
(b) DESCRIBE VISITOR
(c) Degree= 3, Cardinality=4
(d) insert into VISITOR values("V004", "VISHESH",9907607474)
(e) DROP TABLE VISITOR

Q2.A departmental store MyStore is considering to maintain their inventory using SQL to store the data. As a database administer,
Name of the database – mystore
Name of the table - STORE
The attributes of STORE are as follows:

ItemNo - numeric
ItemName – character of size 20
Scode - numeric
Quantity – numeric

Table : STORE

ItemNo	ItemName	**Scode**	**Quantity**
2005	Sharpener Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Get Pen Premium	21	150
2006	Get Pen Classic	21	250
2001	Eraser Small	22	220
2004	Eraser Big	22	110
2009	Ball Pen 0.5	21	180

a) Identify the attribute best suitable to be declared as a primary key,
b) Write the degree and cardinality of the table STORE.
c) Insert the following data into the attributes ItemNo, ItemName and SCode respectively in the given table STORE. ItemNo = 2010, ItemName = "Note Book" and Scode = 25
d) Abhay wants to change the Quantity of ItemNo 2003 by 70, Write a query for this.
e) Which command will be used to count the total rows of table.

Ans: a) ItemNo
b) Degree = 4 Cardinality = 7
c) INSERT INTO store (ItemNo,ItemName,Scode) VALUES(2010, "Note Book",25);
d) Update STORE set Quantity =70 Where ItemNo=2003
e) count(*)

Q3. Write the outputs of the SQL queries (i) to (iii) based on the relations Teacher and Posting given below:

Table: Stationary

S_ID	StationaryName	Company	Price
DP01	Dot Pen	ABC	10
PL02	Pencil	XYZ	6
ER05	Eraser	XYZ	7
PL01	Pencil	CAM	5
GP02	Gel Pen	ABC	15

Table: Consumer

C_ID	ConsumerName	Address	S_ID
1	Good Learner	Delhi	PL01
6	Write Well	Mumbai	GP02
12	Topper	Delhi	DP01
15	Write & Draw	Delhi	PL02

i. SELECT count(DISTINCT Address) FROM Consumer;

ii. SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Stationary GROUP BY Company;

iii. SELECT Consumer.ConsumerName, Stationary.StationaryName, Stationary.Price FROM Stationary, Consumer
WHERE Consumer.S_ID = Stationary.S_ID;

Ans: (i) 2

(ii)

Company	**Max(Price)**	**Min(Price)**	**Count(*)**
ABC	**15**	**10**	**2**
XYZ	**7**	**6**	**2**
CAM	**5**	**5**	**1**

(iii)

Good Learner	**Pencil**	**5**
Write Well	**Gel Pen**	**15**
Topper	**Dot Pen**	**10**
Write & Draw	**Pencil**	**6**

Q4. Consider a database LOANS and Write SQL queries for (i) to (iii)

Table: LOANS

ACNo	**CUST_NAME**	**Amount**	**Installments**	**Int_Rate**	**Start_Date**	**Interest**
1	R.K. Gupta	300000	36	12.00	19-07-2009	1200
2	S.P. Sharma	500000	48	10.00	22-03-2008	1800
3	K.P. Jain	300000	36	NULL	08-03-2007	1600
4	M.P. Yadav	800000	60	10.00	06-12-2008	2250
5	S.P. Sinha	200000	36	12.50	03-01-2010	4500
6	P. Sharma	700000	60	12.50	05-06-2008	3500
7	K.S. Dhall	500000	48	NULL	05-03-2008	3800

(i) Display the sum of all Loan Amounts whose Interest rate is greater than 10.
(ii) Display the Maximum Interest from Loans table
(iii) Display the count of all loan holders whose names are ending with 'Sharma'

Ans: (i) Select sum(Loan_Amount) from LOANS where Interest >10;
(ii) Select max(Interest) from LOANS;
(iii) Select count(*) from LOANS where Cust_Name Like '%Sharma';

Q5. Consider the tables given below.

Table : STOCK

Itcode	Itname	Dcode	Qty	UnitPrc	StkDate
444	Drawing Copy	101	10	21	31-June-2009
445	Sharpener Camlin	102	25	13	21-Apr-2010
450	Eraser Natraj	101	40	6	11-Dec-2010
452	Gel Pen Montex	103	80	10	03-Jan-2010
457	Geometry Box	101	65	65	15-Nov-2009
467	Parker Premium	102	40	109	27-Oct-2009
469	Office File	103	27	34	13-Sep-2010

Table : DEALERS

Dcode	Dname	Location
101	Vikash Stationers	Lanka Varanasi
102	Bharat Drawing Emporium	Luxa Varanasi
103	Banaras Books Corporation	Bansphatak Varanasi

(i) To display all the information about items containing the word "pen" in the field Itname in the table STOCK.
(ii) List all the itname sold by Vikash Stationers.
(iii) List all the Itname and StkDate in ascending order of StkDate.
(iv) List all the Itname, Qty and Dname for all the items for the items quantity more than 40.
(v) List all the details of the items for which UnitPrc is more than 10 and <= 50.

Ans: (i) SELECT * FROM STOCK WHERE Itname LIKE "%pen%";
(ii) SELECT DISTINCT(Itname) FROM STOCK, DEALERS WHERE STOCK.Dcode= DEALERS.Dcode;
(iii) SELECT Itname, StkDate FROM STOCK ORDER BY StkDate;
(iv) SELECT Itname, Qty, Dname FROM STOCK, DEALERS WHERE STOCK.Dcode= DEALERS.Dcode;
(v) SELECT * FROM STOCK WHERE UnitPrc BETWEEN 10 AND 50;

KENDRIYA VIDYALAYA SANGATHAN

RAIPUR REGION

BLUE PRINT BASED ON CBSE SAMPLE PAPER

Computer Science (083) –

Class XII

TOPICS	**1 Mark**	**2 Marks** Short answer questions with internal options	**3 Marks** Long answer questions with internal options	**4 Marks** Case study based questions. Examinee has to attempt 4 parts out of 5 sub parts	**5 Marks** Very Long answer questions with internal option in one question	**Total**
Computational Thinking and Programming – 2	10(10)	6(12)	3(9)	1(4)	1(5)	21(40)
Computer Networks	5(1)	2(4)	0(0)	0(0)	1(5)	8(10)
Database Management	6(4)	2(4)	1(3)	1(4)	1(5)	11(20)
Total	**21(15)**	**10(20)**	**4(12)**	**2(8)**	**3(15)**	**40(70)**

*. Marks are given inside the bracket and number of questions outside the bracket.

Note: Question paper will be prepared following the General Instructions given below.
General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
    a. Section – I is short answer questions, to be answered in one word or one line.
    b. Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
    a. Section-I is short answer questions of 2 marks each in which two question have internal options.
    b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
    c. Section-III is very long answer questions of 5 marks each in which one question has internal option.
6. All programming questions are to be answered using Python Language only

KENDRIYA VIDYALAYA RAIPUR REGION
COMPUTER SCIENCE (083)
CLASS :XII
BLUE PRINT BASED ON CBSE SAMPLE PAPER

PART A	**SECTION-1**	**15 MARKS**	**(15X1 mark)+6 choice**
	SECTION-2	**8 MARKS**	**(2X4 marks) case study**
PART B	**SECTION-1**	**20 MARKS**	**(10X2 marks)**
	SECTION-2	**12 MARKS**	**(4X3 marks)**
	SECTION-3	**15 MARKS**	**(3X5 marks)**
TOTAL		**70 MARKS**	**40 QUESTIONS (34+6)**

UNIT-1	**COMPUTATIONAL THINKING AND PROGRAMMING**		**40 MARKS**
	1)	**REVISION TOUR AND FUNCTION**	**10 marks**
		OUTPUT BASED QUES (STRING, FUNCTION, LIST, TUPLE, DICT)	2
		OUTPUT BASED QUES(RANDOM)	2
		ERROR FINDING QUESTION	2
		THEORY	2
		EVALUATION/IDENTIFIER/LIBRARIES	2
	2)	**FILE HANDLING**	**12 marks**
		TEXT FILE HANDLING	3
		CSV FILE HANDLING (case study)	4
		BINARY FILE HANDLING	5
	3)	**DATA STRUCTURES**	**6 marks**
		STACK	3
		LINEAR LIST	3
	4)	CONNECTIVITY	**2 marks**
		THEORY OR FUNCTIONS	2
	5)	**OTQs**	**10 marks**
UNIT-2	**COMPUTER NETWORKS**		**10 MARKS**
	1)	**NETWORKING**	**7 marks**
		FULL FORMS	2
		NUMERICAL	5
	2)	**WEB SERVICES**	**2 marks**
		THEORY	2
	3)	**OTQs**	**1 mark+4 choice**
UNIT-3	**DATABASE MANAGEMENT**		**20 MARKS**
	1)	**DATABASE CONCEPTS**	**4 marks**
		THEORY (DEGREE/CARDINALITY, KEYS)	2
		THEORY (SQL COMMAND)	2
	2)	**SQL**	**12 marks**
		OUTPUT BASED QUERIES	3
		CASE STUDY	4
		WRITE SQL QUERIES/CASE STUDY	5
	4)	**OTQs**	**4 marks+2 choice**

SAMPLE QUESTION PAPER
WITH
MARKING SCHEME

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -I
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub- parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	Section-I **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	Marks allocated
1	Which of the following is not a valid identifier name in Python? Justify reason for it not being a valid name. a) 5Total b) _Radius c) pie d)While	1
2	What is the output when following code is executed? >>>str1="RAIPUR" >>>str1[::-1]	1
3	Write the importance of passing file mode while declaring a file object in data file handling.	1
4	Which of the following is a valid assignment operator in Python? a) ? b) < c) = d) and e) //	1
5	Suppose a tuple T1 is declared as T1 = (100, 200, 300, 400, 500) which of the following is incorrect? a) print(T[1]) b) T[2] = -29 c) print(max(T)) d) print(len(T))	1
6	Which of the following statement create a dictionary? a) X = { } b) X = {“Sohan”:40, “Mohan”:45} c) X = {40 : “Dinesh”, 45 : “Lokesh”} d) X = All of the mentioned above	1

7	A tuple is declared as T = (10,5,5,10,15) What will be the value of sum(T)?	1
8	_____ is a collection of similar modules or packages that are used to fulfills some functional requirement for a specific type of application	1
9	Name the protocol that is used to send files over a Network	1
10	Your friend Suresh is complaining that he is receiving useless back-to-back mails regarding downloading a software from their site. Identify the type of cybercrime for such situations	1
11	Name the clause used in query to place the condition on groups in MySQL?	1
12	Differentiate between Degree and Cardinality.	1
13	In SQL, write the name of the aggregate function which is used to calculate & display the average of numeric values in an attribute of a relation.	1
14	Which of the following is a DDL command? a) DELETE b) CREATE c) INSERT d) UPDATE	1
15	What do you understand by data transfer rate?	1
16	Identify the valid declaration of L: L = [‘JAN’, ‘12’, ‘NEW YEAR’, ’365’] a.dictionary b. string c.tuple d. list	1
17	Suppose list1 = [0.5 * x for x in range(0,4)], list1 is a) [0, 1, 2, 3] b) [0, 1, 2, 3, 4] c) [0.0, 0.5, 1.0, 1.5] d) [0.0, 0.5, 1.0, 1.5, 2.0]	1
18	Write an SQL query to display all the attributes of a relation named “exam” along with their description.	1
19	Give the full form of the following: (a) URL (b) TDMA	1
20	Write SQL statement to find total number of records in table stu?	1
21	Write the name of topology in which all the nodes are connected through a single Coaxial cable?	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	A medical store Devshri is considering to maintain their inventory using SQL to store the data. As a database administer, atul has decided that: • Name of the database -Devshri • Name of the table -medicalstore • The attributes of medicalstore are as: MedicineNo - numeric MedicineName – character of size 25 MedCode– numeric Quantity – numeric	

		MedicineNo	**MedicineName**	**MedCode**	**Quantity**	
		5647	Saridon	141	75	
		5741	Paracetamol	142	44	
		3546	Nicip Plus	141	60	
		9541	Disprin	140	53	
		2025	Diclofenac	143	73	
		2783	Corex Syrup	141	97	
		8614	Psorid	142	48	
	a) Identify the attribute best suitable to be declared as a primary key,					1
	(b) Write the degree and cardinality of the table medicalstore.					1
	(c) Insert the following data into the attributes respectively in the given table medicalstore. MedicineNo = 6647, MedicineName = "Dapsone", MedCode = 141 and Quantity = 55					1
	(d) Atul want to remove the table medicalstore from the database Devshri. Which command will he use from the following: a) DELETE FROM Devshree; b) DROP TABLE medicalstore; c) DROP DATAB AS medicalstore; d) DELETE medicalstore FROM Devshree;					1
	(e) Now Sahil wants to know the Primary key of the table along with data types of all the columns. Which query should he write?					1

23	Rohit of class 12 is writing a program to search a name in a CSV file "MYFILE.csv". He has written the following code. As a programmer, help him to Successfully execute the given task.
	import _____ # Statement 1
	f = open("MYFILE.csv", _____) # Statement 2
	data = _____ (f) # Statement 3
	nm = input("Enter name to be searched: ")
	for rec in data:
	if rec[0] == nm:
	print (rec)
	f._____( ) # Statement 4
	.					

	(a) Name the module he should import in Statement 1. (b) In which mode, Rohit should open the file to search the data in the file in Statement 2? (c) Fill in the blank in Statement 3 to read the data from the file. (d) Fill in the blank in Statement 4 to close the file. (e) Write the full form of CSV					1 1 1 1 1
	Part B					
	Section-I					
24	Evaluate the following expressions: a) 15*(4%4)//2+6 b) not 10> 5 and 2 < 11 or not 10 < 2					2
25	Differentiate between SMTP & POP3. OR List any two security measures to ensure network security.					2
26	Expand the following terms:					2

	a) IPR b) SIM c) IMAP d)HTTP	
27	What is a module in Python? Define any two functions of Math module in python. OR Differentiate between Positional Argument and Default Argument of function in python with suitable example	2

28	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined.
	DEF callme():
	x = input("Enter a number:")
	if (abs(a)= a):
	print("You entered a positive number")
	else:
	a=*-2
	print ("Number made positive:" a)
	callme()
		2

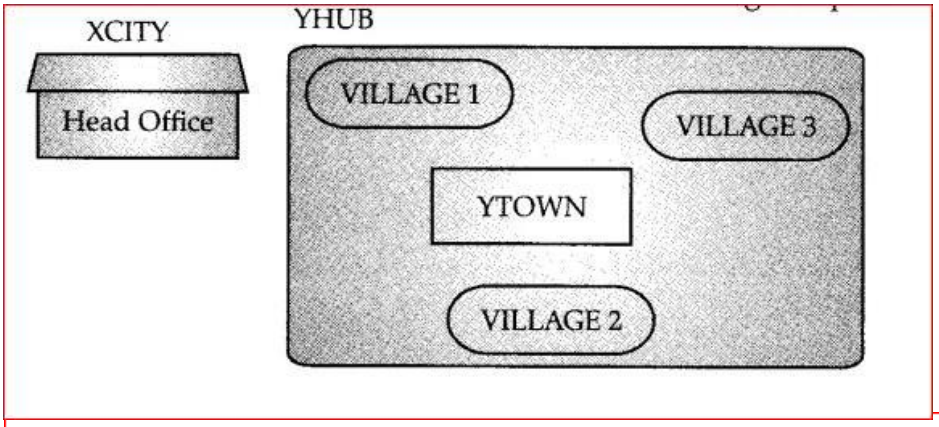
29	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? import random x = 3 N = random, randint (1, x) for i in range (N): print(i, '#', i + i) a. What is the minimum and maximum number of times the loop will execute? b. Find out, which line of output(s) out of (i) to (iv) will not be expected from the program? i. 0#1 ii. 1#2 iii. 2#3 iv. 3#4	2
30	What do you mean by domain of an attribute in DBMS? Explain with an example.	2
31	Differentiate between fetchone()and fetchall()methods with suitable examples for each.	2
32	Differentiate between WHERE and HAVING clause.	2

33	Write the output of following python code
	T="Happy New Year 2021"
	L=len(T)
	ntext=""
	for i in range (0,L):
	if T[i].isupper():
	ntext=ntext+T[i].lower()
	elif T[i].isalpha():
	ntext=ntext+T[i].upper()
	else:
	ntext=ntext+"*"
	print (ntext)
		2

	Section -II	
34	Write a function in **Display** which accepts a list of integers and its size as	3

<table>
<tr><td></td><td>arguments and replaces elements having even values with its half and elements having odd values with twice its value .
eg: if the list contains
5, 6, 7, 16, 9
then the function should rearranged list as
10, 3,14,8, 18</td><td></td></tr>
<tr><td>35</td><td>Write a method in python to read lines from a text file Test.TXT and display those lines which start with the alphabets B.
OR
Write a function Count_word( ) in python to read the text file "story.txt" and count the number of times "vidyalaya" occurs in the file. For example if the file story.txt contains:
"This is my vidyalaya. I love to play and study in my vidyalaya."
the Count_word ( ) function should display the output as:"vidyalaya occurs 2 times".</td><td>3</td></tr>
<tr><td>36</td><td>Write the output of the SQL queries (i) to (iii) based on the table: Staff

<table>
<tr><th>Ecode</th><th>Name</th><th>Dept</th><th>DOB</th><th>Gender</th><th>Designation</th><th>Salary</th></tr>
<tr><td>101</td><td>Sunita</td><td>Sales</td><td>06-06-1995</td><td>F</td><td>Manager</td><td>25000</td></tr>
<tr><td>102</td><td>Neeru</td><td>Office</td><td>05-07-1993</td><td>F</td><td>Clerk</td><td>12000</td></tr>
<tr><td>103</td><td>Raju</td><td>Purchase</td><td>05-06-1994</td><td>M</td><td>Manager</td><td>26000</td></tr>
<tr><td>104</td><td>Neha</td><td>Sales</td><td>08-08-1995</td><td>F</td><td>Accountant</td><td>18000</td></tr>
<tr><td>105</td><td>Nishant</td><td>Office</td><td>08-10-1995</td><td>M</td><td>Clerk</td><td>10000</td></tr>
<tr><td>106</td><td>Vinod</td><td>Purchase</td><td>12-12-1994</td><td>M</td><td>Clerk</td><td>10000</td></tr>
</table>
(i) Select sum(Salary) from staff where Gender = ‘F’ and Dept = ‘Sales’;
(ii) Select Max(DOB), Min(DOB) from staff;
(iii) Select Gender, Count(*) from staff group by Gender;</td><td>3</td></tr>
<tr><td>37</td><td>Write a function in python named PUSH(STACK, SET) where STACK is list of some numbers forming a stack and SET is a list of some numbers. The function will push all the EVEN elements from the SET into a STACK implemented by using a list. Display the stack after push operation.
OR
Write a function in python named POP(STACK) where STACK is a stack implemented by a list of numbers. The function will display the popped element after function call.</td><td>3</td></tr>
<tr><td></td><td>Section- III</td><td></td></tr>
<tr><td>38</td><td>Happiest India is a knowledge community aimed to uplift the standard of skills and knowledge in the society. It is planning to setup its training centres in multiple towns and villages of India with its head offices in the nearest cities. They have created a model of their network with a city, a town and 3 villages as given. As a network consultant, you have to suggest the best network related solution for their issues/problems raised in (i) to (v) keeping in mind the distance between various locations and given parameters</td><td>5</td></tr>
</table>



Shortest distance between various locations:

VILLAGE 1 To YTOWN	2 KM
VILLAGE 2 To YTOWN	1.2 KM
VILLAGE 3 To YTOWN	3 KM
VILLAGE 1 To VILLAGE 2	3.5 KM
VILLAGE 1 To VILLAGE 3	4.5 KM
VILLAGE 2 To VILLAGE 3	3.5 KM
CITY Head office to YHUB	30 KM

Number of computers iinstalled at various locations are as follows:

YTOWN	100
VILLAGE 1	10
VILLAGE 2	15
VILLAGE 3	15
CITY OFFICE	5

Note: * In Villages, there are community centres, in which one room has been given as training center to this organization to install computers. * The organization has got financial support from the government and top IT companies.

1. Suggest the most appropriate location of the SERVER in the YHUB (out of the 4 locations), to get the best and effective connectivity. Justify your answer.

2. Suggest the best wired medium and draw the cable layout (location to

location) to efficiently connect various locations within the YHUB.

3. Which hardware device will you suggest to connect all the computers within each location of YHUB?

4. Which server/protocol will be most helpful to conduct live interaction of Experts from Head office and people at YHUB locations?

5. Suggest a device/software and its placement that would provide data security for the entire network of the YHUB.

39 **Consider the tables given below which are linked with each other and maintains referential integrity.** 5

Table :Party

Partyid	Description	Costperperson
P101	Birthday	400
P102	Wedding	700
P103	Farewell	350
P104	Engagement	450

Table: Client

ClientId	ClientName	Address	Phone	NoOfGuest	PartyId
C101	A.K.Antony	A-151	99101956	80	P101

		Adarsh Nagar			
C102	Fauzia Aria	K-5/52 Vikas Vihar	981166568	500	P102
C103	Rashi Khanaa	D-6 Hakikat Nagar	981166568	50	P101
C104	S.K.Chandra	76-A/2 MG Colony Adarsh Avenue	65877756	100	P104

(i) Name the Primary keys in both the tables .

(ii) 'P101' data is present twice in column 'PartyId' in 'Client' table – Is there any discrepancy? Justify your answer.

With reference to the above given tables , Write commands in SQL for (iii) and (iv) and write output for (v)

(iii) To display Client names of clients, their phone numbers,PartyId and party description who will have number of guests more than 50 for their parties.

(iv) To display Client Ids, their addresses, number of guests of those clients who have 'Adarsh' anywhere in their addresses.

(v) SELECT ClientId, ClientName, NoOfGuests, description,Costperperson FROM Client, Party WHERE Client.Partyid= Party.Partyid AND NOofGuests BETWEEN 50 AND 100;

40

Write a python program to append a new records in a binary file –"student.dat". The record can have Rollno, Name and Marks. 5

OR

Write a python program to search and display the record of the student from a binary file "Student.dat" containing students records (Rollno, Name and Marks). Roll number of the student to be searched will be entered by the user.

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -2
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	**Section-I** **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	**Marks allocated**
1	Which of the following is a valid identifier name in Python? And justify your answer. a) for b) else c) if d)While	1
2	What is the output when following code is executed? >>>A="Best Wishes For CBSE Exam 2021" >>>A[5:15:2]	1
3	Name all the file access modes in python.	1
4	Which of the following is a valid relational operator in Python? a) ? b) < c) =< d) = > e) //	1
5	What is the length of the tuple shown below? t=((('x',10),'y','z'),'p',20),'q',30)	1
6	Write a statement in Python to declare a dictionary whose keys are 10,20,30 and values are Good, Better and Best respectively	1
7	Identify the valid declaration of Class_XII: Class_XII =(10,"Suraj",89) (i)List (ii)Tuple (iii)String (iv)Dictionary	1
8	Name the built-in mathematical function / method that is used to return square root of a number.	1
9	Protocol is used to send email ……	1
10	Your friend's mother receives an e-mail to access the additional services of bank at zero	1

	cost from some agency asking her to fill her bank details like credit card number and PIN in the form attached to the mail. Identify the type of cybercrime in this situation	
11	Identify the DDL Command. (i) Insert into command (ii) Create table command (iii) Drop table Command (iv) Delete command	1
12	Srishti is executing sql query but not getting the appropriate output, help her to do the correction. >>Select name from student where subject=Null;	1
13	In SQL, write the name of the aggregate function which is used to calculate & display the sum of numeric values in an attribute of a relation.	1
14	Which of the following is a DML command? a) DELETE b) UPDATE c) INSERT d) ALL	1
15	Name the Transmission media which consists of an inner copper core and a second conducting outer sheath	1
16	Identify the data type of R: R = tuple(list((3,5,7,6,11))) (a) Dictionary (b) string (c) tuple (d) list	1
17	Find and write the output of the following python code: Q = "Hello Friends" print(Q[-5:-1]) print(Q)	1
18	Write query to display the structure of table exam.	1
19	Write the expanded form of VPN	1
20	Which is not a constraint in SQL? a) Unique b) Distinct c) Primary key d) check	1
21	Write the name of topology in which all nodes are individually connected to a central connection point	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	Dynamic school is considering to maintain their student's information using SQL to store the data. As a database administrator Pratham has decided that: Name of database : school Name of table : student Attributes of the table are as follow: AdmissionNo-numeric FirstName –character of size 30 LastName - character of size 20 DOB - date	

Table student

AdmissionNo	FirstName	LastName	DOB
012355	Rahul	Singh	2005-05-16
012358	Mukesh	Kumar	2004-09-15
012360	Pawan	Verma	2004-03-03
012366	Mahesh	Kumar	2003-06-08
012367	Raman	Patel	2007-03-19

Attempt any four questions

(i)What is the degree and cardinality of the table student — 1

(ii)Identify the attribute best suitable to be declared as Primary Key — 1

(iii)Insert the following data in table student — 1

AdmissionNo=012368
FirstName = Kamlesh
LastName = Sharma
DOB =01 Jan 2004

(iv) Pratham wants to remove the data of mukesh whose admission no is 012358, suggest him SQL command to remove the above said data. — 1

(v) To remove the table student which command is used : — 1

i. Delete from student
ii. Drop table student
iii. Drop database school
iv. Delete student from school

23 Sourya Pratap Singh of class 12 is writing a program to create a CSV file "phone.csv" which will contain Name and Mobile Number for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.

```
import _____                                   # Line 1
def addCsvFile(Name,Mobile): # to write / add data into the CSV file
    f=open(' phone.csv','_____')               # Line 2
    newFileWriter = csv.writer(f)
    newFileWriter.writerow([Name,Mobile])
    f.close()
#csv file reading code
def readCsvFile():                  # to read data from CSV file
        with open(' phone.csv','r') as newFile:
        newFileReader = csv._____(newFile)     # Line 3
        for row in newFileReader:
            print (row[0],row[1])
        newFile._____                          # Line 4
addCsvFile("Atul","1111111111")
addCsvFile("Arun","2222222222")
addCsvFile("Amit","3333333333")
readCsvFile()                                  #Line 5
```

	a) Name the module he should import in Line 1. b) In which mode, Sourya Pratap singh should open the file to add data into the file c) Fill in the blank in Line 3 to read the data from a csv file. d) Fill in the blank in Line 4 to close the file. e) Write the output he will obtain while executing Line 5.	1 1 1 1 1
	Part B	
	Section-I	
24	Evaluate the following expressions: a) 7*5+2**4//2-3 b) 5<10 or 12<7 and not 3>18	2
25	Differentiate between Viruses and Trojans in context of networking and data ommunication threats. OR Differentiate between Website and webpage. Write any two popular example of online shopping..	2
26	Expand the following terms: a. IP b.MAN c.NIC d. UTP	2
27	Differentiate between break and continue statements with a suitable example. OR What is the difference between local and a global variable? Explain with the help of a suitable example	2

28	Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction:
	def Data:
	w = input("Enter a number")
	if w % 2 =0:
	print (w, "is Even Value")
	elseif w<0:
	print (w, "should be positive Value")
	else;
	print (w, "is odd Value")
		2

29	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables FROM and TO. import random AR=[20,30,40,50,60,70] FROM=random.randint(1,3) TO=random.randint(2,4) for K in range(FROM,TO): print (AR[K],end="#") (i)10#40#70# (ii)30#40#50# (iii)50#60#70# (iv)40#50#70#	2
30	What is Constraint ? Give example of any two constraints.	2
31	Write the steps to perform an Insert query in database connectivity application.Table 'student' values are rollno, name, age (5,'Ashok',47)	2
32	Write the full forms of DDL and DML. Write any two commands of DML in SQL.	2
	Find and write the output of the following Python code:	

<table>
<tr><td>33</td><td>def Update (A=10,B=20):
  A=A+B
  B=A-B
  print(A,"#",B)
  return(A)
X=5
Y=10
R=Update(X,Y)
print(X,"#",Y)
S=Update(X)</td><td>2</td></tr>
<tr><td></td><td>Part B(Section II)</td><td></td></tr>
<tr><td>34</td><td>Take the two lists, and write a program that returns a list only the elements that are common between both the lists (without duplicates) in ascending order. Make sure your program works on two lists of different sizes.

e.g.
L1= [1,1,2,3,5,8,13,21,34,55,89]
L2= [20,1,2,3,4,5,6,7,8,9,10,11,12,13]
The output should be:
[1,2,3,5,8,13]</td><td>3</td></tr>
<tr><td>35</td><td>Write a function COUNT_AND( ) in Python to read the text file “STORY.TXT” and count the number of times “AND” occurs in the file. (include AND/and/And in the counting)
OR
Write a function DISPLAYWORDS( ) in python to display the count of words starting with “t” or “T” in a text file ‘STORY.TXT’.</td><td>3</td></tr>
<tr><td>36</td><td>Table : Employee
<table><tr><td>EmployeeId</td><td>Name</td><td>Sales</td><td>JobId</td></tr><tr><td>E1</td><td>Sumit Sinha</td><td>110000</td><td>102</td></tr><tr><td>E2</td><td>Vijay Singh Tomar</td><td>130000</td><td>101</td></tr><tr><td>E3</td><td>Ajay Rajpal</td><td>140000</td><td>103</td></tr><tr><td>E4</td><td>Mohit Kumar</td><td>125000</td><td>102</td></tr><tr><td>E5</td><td>Sailja Singh</td><td>145000</td><td>103</td></tr></table>Table: Job
<table><tr><td>JobId</td><td>JobTitle</td><td>Salary</td></tr><tr><td>101</td><td>President</td><td>200000</td></tr><tr><td>102</td><td>Vice President</td><td>125000</td></tr><tr><td>103</td><td>Administrator Assistant</td><td>80000</td></tr><tr><td>104</td><td>Accounting Manager</td><td>70000</td></tr><tr><td>105</td><td>Accountant</td><td>65000</td></tr><tr><td>106</td><td>Sales Manager</td><td>80000</td></tr></table>Give the output of following SQL statement:
(i) Select max(salary),min(salary) from job
(ii) Select Name,JobTitle, Sales from Employee,Job where Employee.JobId=Job.JobId and JobId in (101,102)
(iii)Select JobId, count(*) from Employee group by JobId</td><td>3</td></tr>
<tr><td>37</td><td>Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.
OR</td><td>3</td></tr>
</table>

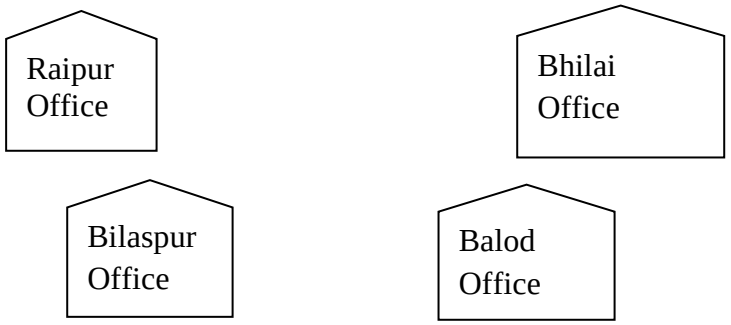
	Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.	
	Section- III	
38	DadaBhai Marketing Ltd. has four branches in its campus named Raipur, Balod, Bhilai Office and Bilaspur . DadaBhai Marketing Ltd. wants to establish the networking between all the four offices. A rough layout of the same is as follows:  Approximate distances between these offices as per network survey team are as follows: **Place From** | **Place To** | **Distance** **Raipur** | Bhilai | 30 m Bhilai | Balod | 40 m Balod | Bilaspur | 25 m **Raipur** | Bilaspur | 150 m Bhilai | Bilaspur | 105 m **Raipur** | Balod | 60 m In continuation of the above, the company experts have planned to install the following number of computers in each of their offices: Raipur | 40 Bhilai | 80 Balod | 200 Bilaspur | 60 i. Suggest the most suitable place (i.e., Block/Center) to install the server of this organization with a suitable reason. ii. Suggest an ideal layout for connecting these blocks/centers for a wired connectivity. iii. Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices? iv. Suggest the placement of a Repeater in the network with justification. v. The organization is planning to connect its new office in Delhi, which is more than 1250 km current location. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer	5
39	Write SQL queries for (i) to (v), which are based on the table: **SCHOOL and ADMIN**	5

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

i) To display all the records of school table.

ii) To display TEACHERNAME, CODE and DESIGNATION from tables SCHOOL and ADMIN whose gender is male.

	iii) To Display number of teachers in each subject. iv) To display details of all teachers who have joined the school after 01/01/1999 in descending order of experience. v) Delete all the entries of those teachers whose experience is less than 10 years in SCHOOL table.	
40	A binary file named "EMP.dat" has some records of the structure [EmpNo, EName, Post, Salary] (a)Write a user-defined function named NewEmp() to input the details of a new employee from the user and store it in EMP.dat. (b) Write a user-defined function named SumSalary(Post) that will accept an argument the post of employees & read the contents of EMP.dat and calculate the SUM of salary of all employees of that Post. Or A binary file named "TEST.dat" has some records of the structure [TestId, Subject, MaxMarks, ScoredMarks] Write a function in Python named DisplayAvgMarks(Sub) that will accept a subject as an argument and read the contents of TEST.dat. The function will calculate & display the Average of the ScoredMarks of the passed Subject on screen.	5

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -3
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	Section-I **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	Marks allocated
1	Which of the following is a invalid identifier name in Python? And justify your answer. a) 1abcd b) _abcd c) abcd d)abcd1	1
2	What is the output when following code is executed? >>>A="CS Exam 2021 " >>>A[::2]	1
3	Which is the file access mode using for both reading and writing in python?	1
4	Which of the following is a Invalid relational operator in Python? **a) > b) < c) = < d) > =**	1

5	What is the result of code shown below?
	>>> t1=("sun","mon","tue","wed")
	>>> print(t1[-1])
		1

6	Write a statement in Python to declare a dictionary whose keys are Day,Month,Year and values are 31, 12 and 2020 respectively	1
7	What is the wrong in the following code ? t1=(10,20,30,40,50,60,70,80) i=t1.len() print(t1,i)	1

8	Differentiate between the round ( ) and floor ( ) functions with the help of suitable example.	1
9	Name the protocol that is used to receive e-mail ……	1
10	What is Phishing? Explain with examples.	1
11	The FROM SQL clause is used to… A) specify what table we are selecting or deleting data FROM B) specify range for search condition C) specify search condition D) None of these	1
12	Which SQL keyword is used to retrieve a maximum value? A) TOP B) MOST C) UPPER D) MAX	1
13	Which of the following is not a built in aggregate function in SQL? a) avg b) max c) total d) count	1
14	In SQL, what is the use of Like Operator?	1
15	Name two transmission media for networking.	1
16	What will be the output of the following Python code? >>>t = (1, 2) >>>2 * t a) (1, 2, 1, 2) b) [1, 2, 1, 2] c) (1, 1, 2, 2) d) [1, 1, 2, 2]	1
17	Write the output of the following python code: aList = [5, 10, 15, 25] print(aList[::-2]) **a.[15,10,5] b.[10,5] c.[5,10,15,25] d.[25,10]**	1
18	Write query to display all the records of the table Computerlab.	1
19	Write the expanded form of HTTP.	1
20	What is primary key.	1
21	Name any two components required for networking.	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	KVS RO Raipur wants to store their student's data using SQL to store data. The details is as under: Name of the Database: Raipur Name of the Table: Stu_Data The attributes are as follows; i. Std_id: Numeric ii. Name: Character of size 20 iii. Class: character of size 4 iv. Marks: Numeric v. City: Character of size 20	

Std_id	Name	Class	Marks	City
1	Amit	12th	495	Mahasamund
2	Sumit	11th	490	Raipur
3	Suresh	10th	500	Bilaspur
4	Dinesh	9th	450	Durg
5	Deepesh	8th	400	Balod

a. Identify the attribute best suitable to be declared as Primary Key — 1

b. Which Command is used to create the database Raipur — 1

c. Write SQL query to insert the following record into the table Stu_Data
Std_id,Name,Class ,Marks,City (6,"Somesh","7th",400,"Raigarh") — 1

d. Write the query to display the structure of the table. — 1

e. Display the records whose marks is greater than 450. — 1

23 Anita writing a program to create a csv file "abc.csv" which contain user id and name of the beneficiary. She has written the following code. As a programmer help her to successfully execute the program.

```
import_____                                          #Line 1
with open('d:\\abc.csv','w') as newFile:
    newFileWriter = csv.writer(newFile)
    newFileWriter.writerow(['user_id','beneficiary'])
    newFileWriter._____([1,'xyz'])                   #Line2
    newFile.close()
with open('d:\\abc.csv','r') as newFile:
    newFileReader = csv.                (newFile)    #Line 3
    for row in newFileReader:
            print (row)                              #Line 4
    newFile._____                                    #Line 5
```

a) Name the module he should import in Line 1 — 1
b) Fill in the blank in line 2 to write the row. — 1
c) Fill in the blank in line 3 to read the data from csv file. — 1
d) Write the output while line 4 is executed. — 1
e) Fill in the blank in line 5 to close the file. — 1

Part B

Section-I

24 Evaluate the following expressions: — 2

a) 4+2*5**2//4-2

b) 75>56 and 1<0 and not 2>4

25 What is the difference between packet switching and circuit switching techniques?. — 2
OR
State two reasons for which you may like to have a network of computers instead of having

	standalone computers...	
26	Expand the following terms: (a) VoIP (b) SMTP (c) TDMA (d) TCP/IP	2
27	What is the difference between actual and formal parameters. OR What do you mean by scope of variables ?	2

28	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	a=int{input("ENTER FIRST NUMBER")}
	b=int(input("ENTER SECOND NUMBER"))
	c=int(input("ENTER THIRD NUMBER"))
	if a>b and a>c
	print("A IS GREATER")
	if b>a and b>c:
	Print("B IS GREATER")
	if c>a and c>b:
	print(C IS GREATER)
		2

29	What will be the possible output(s), from options (i) to (iv) of the following code segment, also write minimum and maximum value of N when I = 2. import random L=10 P=10 for I in range(1,4): N=L+random.randrange(P)+1 print(N, end = "@") P -= 1 **(i)10@12@13@** **(ii)11@14@18@** **(iii)12@16@20@** **(iv)13@20@15@**	2
30	Differentiate between DDL and DML commands.	2
31	What is a cursor and how to create it in Python SQL connectivity?	2
32	How Varchar is different from char datatype in SQL?	2

33	Find and write the output of the following python code:
	s = 'XYZ'
	for i in range(len(s)):
	if i % 2 == 0:
	print(s[i] * 2)
	else:
	print(s[i] * i)
		2

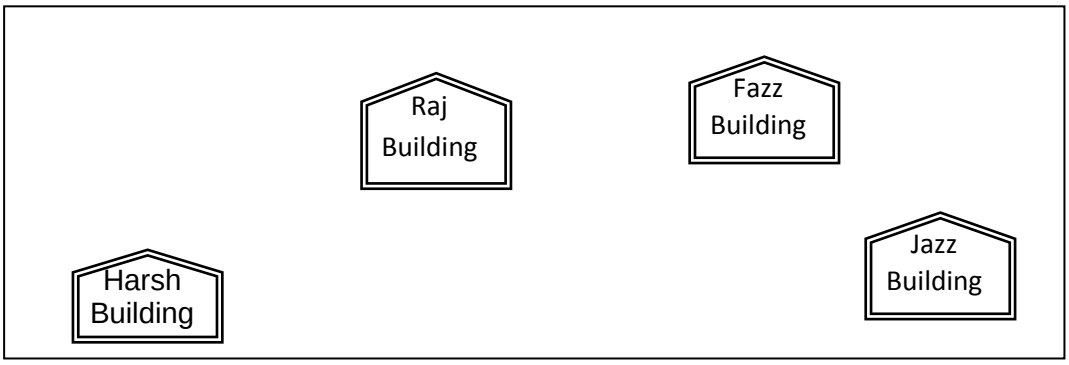
	Part B(Section II)	
34	Write a Python function to sum all the even numbers in a list. Sample List : [10,20,5,6,30,45] Expected Output : 66	3
35	Write a function in python to count and display the number of no. of digits present in a text file “data.txt”. OR	3

	Write a function in python to count and display the no. of words starting with "S" in a text file "Poem.txt".	
36	Write SQL queries (i) to (iii) based on the relation Graduate.	3

S.NO	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	I
2	DIWAKAR	450	COMP. Sc.	68	I
3	DIVYA	300	CHEMISTRY	62	I
4	REKHA	350	PHYSICS	63	I
5	ARJUN	500	MATHS	70	I
6	SABINA	400	CEHMISTRY	55	II
7	JOHN	250	PHYSICS	64	I
8	ROBERT	450	MATHS	68	I
9	RUBINA	500	COMP. Sc.	62	I
10	VIKAS	400	MATHS	57	II

i. Select subject, sum(Average) from Graduate
GROUP BY Subject;
ii. Select Max(Stipend), Min(Stipend) from Graduate;
iii. Select Div, count(*) from Graduate Group By Div;

37	**Write a function in Python PUSH() to insert an element in the stack. After inserting the element display the stack.** **OR** **Write a function in Python POP() to remove the element from the stack and also display the deleted value.**	3
	Section- III	
38	Ravya Industries has set up its new center at Kaka Nagar for its office and web based activities. The company compound has 4 buildings as shown in the diagram below:	5



Center to center distances between various buildings is as follows:

Harsh Building to Raj Building	50 m
Raz Building to Fazz Building	60 m
Fazz Building to Jazz Building	25 m
Jazz Building to Harsh Building	170 m
Harsh Building to Fazz Building	125 m
Raj Building to Jazz Building	90 m

Number of Computers in each of the buildings is follows:

Harsh Building	15
Raj Building	150
Fazz Building	15
Jazz Bulding	25

1) Suggest a cable layout of connections between the buildings.

2) Suggest the most suitable place (i.e. building) to house the server of this organization with a suitable reason.

3) Suggest the placement of the following devices with justification:

(i) Repeater

(ii) Switch / Hub

4) The organization is planning to link its Head Office situated in Delhi to its offices in Kaka Nagar(Distance between Delhi to Kaka Nagar is 78 KM), which type of network out of LAN, MAN or WAN will be formed? Justify your answer

5) Suggest the best cable for the LAN Connection

(a) Telphone (b) Fiber Optics (c) Ethernet Cable

39	Write SQL command for (i) to (v) on the basis of the table Employees & EmpSalary **Table: Employee** **Empid** | **Firstname** | **Lastname** | **Address** | **City** 010 | Ravi | Kumar | Raj nagar | GZB 105 | Harry | Waltor | Gandhi nagar | GZB 152 | Sam | Tones | 33 Elm St. | Paris 215 | Sarah | Ackerman | 440 U.S. 110 | Upton 244 | Manila | Sengupta | 24 Friends | New Delhi 300 | Robert | Samuel | 9 Fifth Cross | Washington 335 | Ritu | Tondon | Shastri Nagar | GZB 400 | Rachel | Lee | 121 Harrison | New York 441 | Peter | Thompson | 11 Red Road | Paris **Table: EmpSalary** **Empid** | **Salary** | **Benefits** | **Designation** 010 | 75000 | 15000 | Manager 105 | 65000 | 15000 | Manager 152 | 80000 | 25000 | Director 215 | 75000 | 12500 | Manager 244 | 50000 | 12000 | Clerk 300 | 45000 | 10000 | Clerk 335 | 40000 | 10000 | Clerk 400 | 32000 | 7500 | Salesman 441 | 28000 | 7500 | salesman a) To show firstname,lastname,address and city of all employee living in paris b) To display the content of Employee table in descending order of Firstname. c) To display the firstname,lastname and total salary of all managers from the tables Employee and empsalary , where total salary is calculated as salary+benefits. d) To display Empid, Designation and Salary of all employee from EmpSalary table whose benefits more than 14000. e) To display empid, FirstName and city from employee table whose lastname start with s.	5
40	**A binary file "EMPLOYEE. DAT' has structure as empcode, Name and Salary. Write a function count() that would read content of the file "EMPLOYEE.DAT" and display the details of all those employee whose salary is more than 50000.** **Or** **Consider a binary file emp.dat having records in the form of dictionary. E.g {eno:1, name:"Rahul", sal: 5000}**	5

	write a python function to display the records of above file for those employees who get salary between 25000 and 30000.	

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -4
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	**Section-I** **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	**Marks allocated**
1	Which of the following is / are valid identifier/s in Python: continue, 123Road, _123A, MyHome	1
2	What do we use to define a block of code in Python language? a. Key b. Brackets c. Indentation d. None of these	1
3	……is a process of storing data into files and allows to performs various tasks such as read, write, append, search and modify in files.	1
4	**What is the output of the following code :** >>> print(9//2) **(A) 4.5** **(B) 4.0** **(C) 4** **(D) Error**	1
5	What is the result of code shown below? tuple1 = (10, 20) tuple2 = (30, 40) tuple1, tuple2 = tuple2, tuple1 print(tuple2)	1

	print(tuple1)	
6	Write a statement in Python to declare a dictionary whose keys are Mon,Tues,Wed,Thur,Fri,Sat and values are “CS”,”Phy”,”Chem”,”Maths” “Eng” and “Hindi” respectively	1
7	A tuple is declared as T = (10,20), (10,20,40), (50,30) What will be the value of min(T) ?	1
8	What are the built-in types of python?.	1
9	A …… is a device that works like a bridge but can handle different protocols	1
10	Posing as someone else online and using his/her personal/financial information shopping or posting something is a common type of cyber-crime these days. What are such types of cyber-crimes collectively called?	1
11	What is the purpose of using references word in terms of DBMS/RDBMS?	1
12	Which clause of select command is used to group the rows on the basis of common values in a column?	1
13	Which of the following is/are built in aggregate function in SQL? a) sum b) min c)count d) All	1
14	Sourabh wants to remove all rows from the table ACCT. But he needs to maintain the structure of the table. Which command is used to implement the same?	1
15	Write one characteristic each for 2G and 3G mobile technologies.	1
16	What will be the output of the following Python code? S= “Hello Friends” print S[:-4] print S[-4:]	1
17	How many times is the following loop executed? i = 100 while (i<=200): print i i + =20	1
18	While creating table ‘customer’, Maneesha forgot to add column ‘price’. Which command is used to add new column in the table. Write the command to implement the same.	1
19	Write two characterstics of Wi-Fi..	1
20	What is relation? Define the relational data model.	1
21	Identify the Domain name and URL from the following: http://www.income.in/home.aboutus.hml.	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	**As a database administrator, answer any 4 of the following questions:** Name of the table : S_DRINK The attributes are as follows: Drinkcode, Calories – Integer Price - Decimal Dname - Varchar of size 20	

Drinkcode	Dname	Price	Calories
101	Lime and Lemon	20.00	120
102	Apple Drink	18.00	120
103	Nature Nectar	15.00	115
104	Green Mango	15.00	140
105	Aam Panna	20.00	135
106	Mango Juice Bahar	12.00	150

a. Identify the attributes that can be called Candidate keys. 1

b. What is the cardinality and degree of the table S_DRINK 1

c. Include the following data in the above table. 1

Drinkcode = 107, Dname = "Milkshake" and Calories = 125

d. Give the command to remove all the records from the table. 1

e. Write a query to create the above table with Drinkcode as the Primary Key . 1

23 Anil of class 12 is writing a program to read the details of Games performance and store in the csv file "Games.csv" delimited with a tab character. As a programmer, help him to achieve the task.

[Answer any 4].

```
import _____ #Line 1
f = open("Games.csv","a")
wobj = csv._____(f, delimiter = '\t')   # Line 2
wobj.writerow( ['Sport', 'Competitions', 'Prizes Won'] )
ans = 'y'
  i = 1
while ans == 'y':
    print("Record :", i)
    sport = input("Sport Name :")
    comp = int(input("No. of competitions participated :"))
    prize = int(input("Prizes won:"))
    record =_____   # Line 3
    wobj._____(rec)   # Line 4
    i += 1
    ans = input("Do u want to continue ? (y/n) :")
f._____   # Line 5
```

	a) **Name the module he should import in Line 1** **b) To create an object to enable to write in the csv file in Line 2** **c) To create a sequence of user data in Line 3** **d) To write a record onto the writer object in Line 4** **e) Fill in the blank in Line 5 to close the file.**	1 1 1 1 1
	Part B	
	Section-I	
24	Evaluate the following expressions: a) (2**2)*(3**3)//(2**4) b) 2>1 and 1<0 and not 4>2	2
25	What is the function of Modem? OR In networking, what is WAN? How is it different from LAN?.	2
26	Expand the following terms: (a) WLL (b) 5G (c) POP3 (d) Gbps	2
27	Which string method is used to implement the following: To count the number of characters in the string. To check whether given character is letter or a number. OR What are the advantages of keyword arguments?	2

28	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	
	function double(x):
	return 2*x
	I =int(input())
	N = double (I)
	if N= 100:
	print(“Input is equal to 50”)
	else:
	print(“Double of the Number”+ I + “is” + N)
		2

29	What are the possible outcome(s) expected from the following python code? Also specify the maximum and minimum values that can be assigned to variable .
	import random
	def Show():
	p = "MY PROGRAM"
	i = 0
	while p[i] != "R":
	l = random.randint(0,3) + 5
	print(p[l],"-")
	i += 1
	Show()
	(i) R – P – O – R – (ii) P – O – R – Y –
		2

	(iii) O – R – A – G – (iv) A– G – R – M –	
30	Differentiate between Drop and Delete commands.	2
31	Answer the following : i) Name the package for connecting Python with MySQL database. ii) What is the purpose of cursor object?	2
32	Answer the following : (a) Write SQL query to add a column total price with datatype numeric and size 10, 2 in a table product. (b) Sachin needs to display name of teachers, who have "0" as the third character in their name. He wrote the following query. SELECT NAME FROM TEACHER WHERE NAME = "$$0?"; **But the query is'nt producing the result. Identify the problem.**	2

33	Find and write the output of the following python code:
	def Find():
	L = "computer"
	x = " "
	count = 1
	for i in L:
	if i in ['a', 'e',' i', 'o', 'u']:
	x = x + i
	else:
	if (count%2!= 0):
	x = x + str(len(L[:count]))
	else:
	x = x + i
	count = count + 1
	print(x)
	Find()
		2

	Part B(Section II)	
34	Write a program that rotates the elements of a list so that the element at the first index moves to the second index, the element in the second index moves to the third index, etc., and the element in the last index moves to the first index. Suppose List is : lis=[1,2,3,4,5] Result should be [5, 1, 2, 3, 4]	3
35	Write a function myfile() in python to read the text file "Sample.txt" and display those lines which start with the alphabet 'A' OR Write a function Display_Result( ) in python to read lines from a text file "XYZ.txt" and display those words , which are greater than equal to 3 characters.	3

36 | Write output for queries (i) to(iii), which are based on the table : Books. | | 3

Book_id	Book_name	Author_name	Publisher	Price	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	5
F0001	The Tears	William hopkin	NIL	650	20
T0001	My First Py	Brain& Brooke	EPB	350	10
T0002	Brain works	A.W. Rossaine	TDH	450	15
F0002	Thunderbolts	Anna Roberts	NIL	750	5

i. Select Count(Publisher) from Books;
ii. Select Max(Price) from books where qty >=15;
iii. Select count(distinct publishers) from books where Price>=400;

37 | Write AddCustomer(Customer) method in Python to add a new customer, considering it to act as a PUSH operation of the stack data structure. Also display the contents of the Stack after PUSH operation. Details of the Customer are: CID and Name.

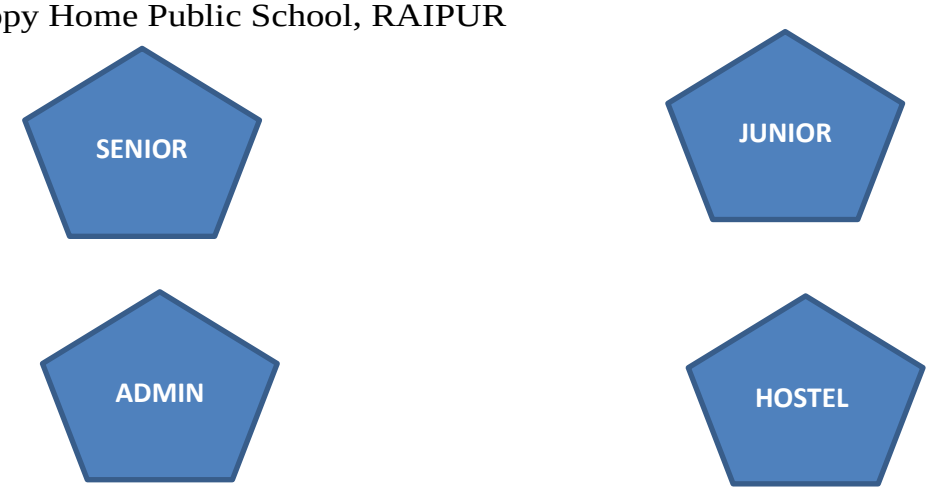
OR

Write RemoveCustomer(Customer) method in Python to remove a Customer, considering it to act as a POP operation of the stack data structure. Also return the value deleted from stack. | 3

Section- III

38 | Happy Home Public School, RAIPUR is Setting up the network between its Different Wings of school campus. There are 4 wings named as SENIOR(S), JUNIOR (J), ADMIN (A) and HOSTEL (H). | 5

Happy Home Public School, RAIPUR



Distance between various wings are given below:

Wing A to Wing S	100m
Wing A to Wing J	200 m
Wing A to Wing H	400 m
Wing S to Wing J	300 m
Wing S to Wing H	100 m
Wing J to Wing H	450 m

Number of Computers installed at various wings are as follows

Wing S	Number of Computers
Wing A	20
Wing S	150
Wing J	50
Wing H	25

1. Suggest the best wired medium and draw the cable layout to efficiently connect various wings of Happy Home Public School, RAIPUR.
2. Name the most suitable wing where the Server should be installed. Justify your answer.
3. Suggest a device/software and its placement that would provide data security for the entire network of the School
4. Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphone/laptop users in the campus of Happy Home Public School, RAIPUR
5. Suggest the placement of the Hub/Switch device with justification.

39 Write SQL command for (i) to (v) on the basis of the table **Trainer & Course** 5

Trainer

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNANA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

Course

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

a. Display the Trainer Name, City & Salary in descending order of their Hiredate.
b. To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.
c. To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000
d. To display number of Trainers from each city.
e. To Display the TID, TNAME and SALARY whose TNAME starts with 'M'.

40 Given a binary file "record.dat" has structure (Emp_id, Emp_name, Emp_Salary). Write a function in Python Rec_count() in Python that would read contents of the file "record.dat" and display the details of those employee whose salary is less than 20000 — 5

OR

A binary file "Stu.dat" has structure (rollno, name, marks).

(i)Write a function in Python add_record() to input data for a record and add to Stu.dat.

(ii)Write a function in python Search_record() to search a record from binary file "Stu.dat" on the basis of roll number

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -5
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	**Section-I** **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	**Marks allocated**
1	Out of the following, find those identifiers, which cannot be used for naming Variables or functions in a Python program: **Total * Tax, While, class, Switch, 3rd Row, finally, Column 31, Total**	1
2	What is the output when following code is executed? >>>**S="Central Board of Secondary Education "** >>>**S[1:70:10]**	1
3	A _____ is plain text file which contains list of data in tabular form.	1
4	Which of the following is/are valid Membership Operators in Python? a) ? b) < c) not in d) and e) in	1
5	What will be the output of the following Python code? >>>my_tuple = (1, 2, 3, 4) >>>my_tuple.append((5, 6, 7)) >>>print len(my_tuple) a) 1 b) 2 c) 5 d) Error	1

6	Given is the following Dictionary dict={1:'A',2:'B',3:'C',6:'D',4:'E'} ? What is the output of the command print(dict[6])	1
7	Which of the options out of (i) to (iv) the correct data type for the variable lst is as defined in the following Python statement? lst = ('A', 'E', 'I', 'O', 'U') (i) List (ii) Dictionary (iii) Tuple (iv) Array	1
8	Name the Python Library modules which need to be imported to invoke the following functions : 1. sin() 2. ceil()	1
9	What is MAC Address?	1
10	Credit card frauds, phishing, cyber bullying, spamming are kind of ……crime	1
11	Which keyword eliminates redundant data from a query result?	1
12	What are alternate keys?	1
13	What is the use of UNIQUE constraint in MYSQL?	1
14	Which command is used to delete a table schema i) Delete ii) Drop iii) Del iv) Remove	1
15	What is Baud rate?	1
16	Write the output of the following code of python: A={10:1000,20:2000,30:3000,40:4000,50:5000} print A.keys() print A.values()	1
17	Rewrite the following for loop into while loop: for a in range(90, 9, -9): print (a)	1
18	Which is the table constraint used to stop null values to be entered in the field (i) Unique (ii) Not NULL (iii) Not Empty (iv) None	1
19	Name the media preferably used in the Internet Backbone of Country	1
20	In SQL, write the query to display the list of database in the server.	1
21	10:B4:03:56:2E:DF is an example of …….	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	A Ramco Book Shop is considering to maintain their inventory using SQL to store the data. As a database administer, Neelmadhav has decided that: • Name of the database -Ramco • Name of the table -shop • The attributes of shop are as:	

ICODE,SCODE,QTY,RATE - numeric
INAME– character of size 25
BUYDATE -date

ICODE	INAME	SCODE	QTY	RATE	BUYDATE
1005	Note Book	13	120	24	03-May-13
1003	Eraser	12	80	5	07-Aug-13
1002	Pencil	12	300	10	04-Mar-13
1006	Bag	11	70	300	27-Dec-12
1001	Pen	13	250	20	18-Jul-13
1004	Sharpener	12	100	10	23-Jun-13
1009	Box	11	50	80	17-Dec-12

a) Identify the attribute best suitable to be declared as a primary key, 1

(b) Write the degree and cardinality of the table shop. 1

(c) Insert the following data into the attributes respectively in the given table shop
ICODE=1010,INAME=”Bag” ,RATE=240 1

(d) NeelMadhav wants to remove the table shop from the database Ramco. Which command will he use from the following: 1
a) DELETE FROM Ramco;
b) DROP TABLE shop;
c) DROP DATAB AS shop;
d) DELETE shop FROM Ramco;

(e) Now Neelmadhav wants to know the Primary key of the table along with data types of all the columns. Which query should he write? 1

23 Pratap is a software developer for KVS he has written a program to create a “**kvs.txt”** file that will have the data. Fill the blank with appropriate command / method

```
f = open('kvs.txt', 'w')
f.write('This is my Record File')

# Create save and close the file
f._____   #Line 1

# Open the file in read from beginning mode
f = open('kvs.txt', '___')    #Line 2

# Now read from the beginning first 5 characters
f.seek(___ , ___ )      #Line 3

#Now read from the end last 12 characters
f.seek(___ , ___ )      #Line 4

# reading the entire content of file from current position
rea = f._____   #Line 5
print(rea)
f.close()
```

i) Write the method to save and close the file ‘kvs.txt’ 1
ii) Write the file open mode to read from beginning 1
iii) Write the method parameter to read from beginning to 5 characters (offset) 1
iv) Write the method parameter to read from end to 12 characters (offset) 1
v)Write the method to read the file from correct position. 1

	Part B	
	Section-I	
24	Evaluate the following expressions: a) 10*1 * 2**4 - 4// 4 b) 1> -1 and 15 < 12 or not 2 > 1	2
25	Explain LAN, WAN and MAN with examples. OR Differentiate between Internet and Intranet.	2
26	Write the full form of the following: (i) LED (ii) Modem (iii)PPP (iv) ISP	2
27	What is the difference between built-in functions and modules?. OR Write definition of a Method MSEARCH(STATES) to display all the state names from a list of STATES, which are starting with alphabet M. For example: If the list STATES contains [“MP’,”UP”,”MH”,”DL”,”MZ”,”WB”] The following should get displayed MP MH MZ	2
28	Rewrite the following code in python after removing all syntax error(s).Underline each correction done in the code. 80=T for i in range(0,T) if i%2=0: print(i*10) Else: print(i+5)	2
29	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables Lower and Upper. import random as r val = 35 P = 7 Num = 0 for i in range(1, 5): Num = val + r.randint(0, P - 1) print(Num, " $ ", end = "") P = P - 1 (a) 41 $ 38 $ 38 $ 37 $ (b) 38 $ 40 $ 37 $ 34 $ (c) 36 $ 35 $ 42 $ 37 $ (d) 40 $ 37 $ 39 $ 35 $	2
30	What is the difference between UNIQUE and PRIMARY KEY constraint. Give a suitable example of both in a table containing some meaningful data..	2

31	Consider the following Python code is written to access the record of CODE passed to function: Complete the missing statements:
	
	def Search(eno):
	#Assume basic setup import, connection and cursor is created
	query="select * from emp where empno=_____".format(eno)
	mycursor.execute(query)
	results = mycursor._____
	print(results)
		2

32	Differentiate between alternate key and candidate key.	2

33	Write the output of following python code
	def result(s):
	  n = len(s)
	  m=''
	  for i in range(0, n):
	  if (s[i] >= 'a' and s[i] <= 'm'):
	  m = m + s[i].upper()
	  elif (s[i] >= 'n' and s[i] <= 'z'):
	  m = m + s[i-1]
	  elif (s[i].isupper()):
	  m = m + s[i].lower()
	  else:
	  m = m + '#'
	  print(m)
	
	result('Cricket'))
		2

	Section -II	
34	Write a program to input any string and to find the number of words in the string..	3
35	Write a function count_is_as() in Python that counts the number of "is" and "as" words present in a text file "STORY.TXT". If the "STORY.TXT" contents are as follows: *This is a Story of a Rabbit.* *He was as cunning as a Fox.* *The Story is very Interesting.* The output of the function should be: Count of is/as in file: 4 **OR** Write a function SRCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets S and R (including small cases s and r too). If the "STORY.TXT" contents are as follows: *This is a Story of a Rabbit.* *He was as cunning as a Fox.* *The Story is very Interesting.* The SRCount() function should display the output as: S or s : 9 R or r : 5	3

36 | Consider the following tables FACULTY and COURSES. Write SQL commands for the statements (i) to (iii). | 3

FACULTY

F_ID	Fname	Lname	Hire_date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000

COURSES

C_ID	F_ID	Cname	Fees
C21	102	Grid Computing	40000
C22	103	System Design	16000
C23	104	Computer Security	8000
C24	103	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

i) Select F_ID, sum(Fees) from COURSES group by F_ID;

ii) Select Max(Salary), Min(Salary) from Faculty;

iii) Select Fname, Lname from FACULTY where Lname like ='M%';

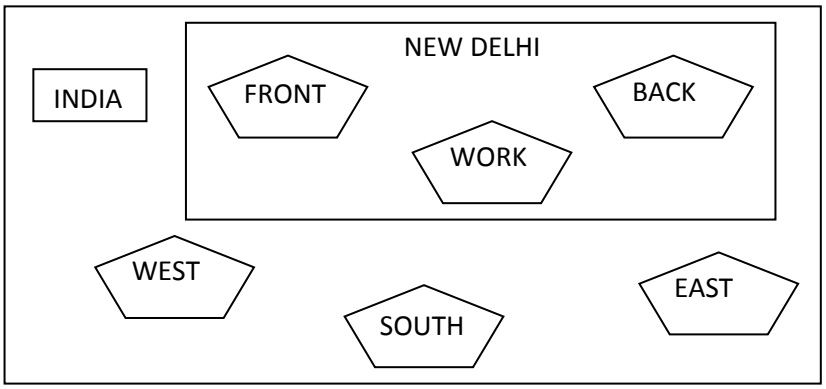
37 | Write PushStk(Car) and PopStk(Car) functions in Python to add a new Car and delete a Car from a list of Car specification, considering them to act as push and pop operations of the Stack data structure | 3

OR

Write a function in python named Drop_Data(d) where **d** is a stack implemented by a list of numbers. The function will display the popped element after function call.

Section- III

38 | Smart Connectivity Association is planning to spread their office in four major cities in India to provide regional IT infrastructure support in the field of Education & Culture. The company has planned to setup their head office in New Delhi in three locations and have named their New Delhi offices as "FRONT OFFICE", "BACK OFFICE", "WORK OFFICE". The company has three more regional offices namely "WEST OFFICE", "SOUTH OFFICE", "EAST OFFICE" Located in other three major cities of India. A rough layout of the same is as follow: | 5



Distance between Offices: **Number of Computers**

	Back Office to Front Office - 10 KM **Back Office to Work Office -70 mtr** **Back Office to East Office -1291 KM** **Back Office to West Office -790 KM** **Back Office to South Office -952 KM** **Back Office ----- 100** **Front Office ----- 20** **Work Office ----- 50** **East Office ----- 50** **West Office ----- 50** **South Office ----- 50** (i)Suggest network type for connecting each of the following sets of their offices: (a)Back Office and Work Office (b) Back Office and South Office (ii)Which device you will suggest to be produced by the company for connecting all the computers within each of their offices out of the following devices? a. Hub/Switch b. Modem c. Telephone (iii)Which of the following communication medium, you will suggest to be produced by the company for connecting their local offices in New Delhi for very effective and fast communication. a. Telephone cable b. Optical Fiber c. Ethernet Cable (iv)Suggest the layout for connecting each office. (v) Suggest the type of networking between Back Office to West Office LAN,MAN,WAN	
39	**Consider the following tables Shop and answer the following questions:** **ICODE** | **INAME** | **SCODE** | **QTY** | **RATE** | **BUYDATE** **1005** | **Note Book** | **13** | **120** | **24** | **03-May-13** **1003** | **Eraser** | **12** | **80** | **5** | **07-Aug-13** **1002** | **Pencil** | **12** | **300** | **10** | **04-Mar-13** **1006** | **Bag** | **11** | **70** | **300** | **27-Dec-12** **1001** | **Pen** | **13** | **250** | **20** | **18-Jul-13** **1004** | **Sharpener** | **12** | **100** | **10** | **23-Jun-13** **1009** | **Box** | **11** | **50** | **80** | **17-Dec-12** Write SQL commands for the following statements: (i) To display all the details of table shop in ascending order of Buydate. (ii) To display ICODE and INAME from the table shop whose QTY is more than 100. (iii) To display all the details of the table shop whose SCODE is12 and rate is more than 5 (iv) To display all the details from shop table whose INAME start with B. (v) To display all the details whose QTY between 80 to 150.	5
40	A binary file "Store.dat" has structure [ItemNo, Item_Name, Company, Price]. i. Write a function CountRec(Company) in Python which accepts the Company name as parameter and count and return number of Items by the given Company are stored in the binary file "Store.dat". ii. Write a function AddRecord(<List>) which accepts a List of the record [ItemNo, Item_Name, Company, Price] and appends in the binary file "Store.Dat"	5

	OR A binary file "SCHOOL.DAT" has structure [Roll_Num, Name, Percentage] i) Write a function Count_Rec() in Python that would read contents of the file "SCHOOL.DAT" and display the details of those students whose percentage is below 33 . Also display number of students scoring below 33%. ii) Write a function Disp_Rec(alphabet) in Python that would read contents of the file "SCHOOL.DAT" and display the details of those students whose name begin with the alphabet as passed as parameter to the function.	

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -I
Class: XII
Subject: Computer Science (083)
MARKING SCHEME

MaximumMarks:70 **Time Allowed: 3hours**

	Part – A **Section - I**	
1	a) 5Total Reason: An identifier cannot start with a digit.	1
2	'RUPIAR'	1
3	File mode is used to tell that file object will read or write or both data in a data file.	1
4	=	1
5	b) T[2] = -29	1
6	d) X = All of the mentioned above	1
7	45	
8	Library	1
9	FTP (File Transfer Protocol)	1
10	Phishing	1
11	HAVING Clause	1
12	Degree – it is the total number of columns in the table. Cardinality – it is the total number of tuples/Rows in the table	1
13	AVG()	1
14	b) CREATE	1
15	The data transfer rate (DTR) is the amount of digital data that is moved from one place to another in a given time	1
16	d.list	1
17	[0.0, 0.5, 1.0, 1.5]	1
18	DESCRIBE exam; or DESC exam;	1
19	(a) URL – Uniform Resource Locator (b) TDMA – Time Division Multiple Access	1
20	SELECT COUNT (*) FROM STU;	1
21	Bus Topology	1

	Part – A **Section - II**	
22	Answers: (a) MedicineNo (b) Degree= 4 Cardinality =7 (c) INSERT INTO medicalstore (MedicineNo, MedicineName, MedCode,Quantity) VALUES(6647, "Dapsone", 141,55); (d) DROP TABLE medicalstore; (e) DESCRIBE medicalstore	1 1 1 1 1
23	(a) csv. (b) "r"? (c) data = csv.reader(f) (d) f.close() (e) Comma Separated Values	1 1 1 1 1
	Part – B	
24	a) 6 b) True	2
25	SMTP: It is used to send emails. POP3: It is used to receive emails. 1 mark for each correct difference. OR 1. Firewall 2. User Authentication .5 mark for any 2 correct answers.	2
26	a) IPR – Intellectual Property Rights b) SIM – Subscriber's Identity Module c) IMAP – Internet Message Access Protocol d) HTTP – Hypertext transfer Protocol	2

27	In PYTHON, module is a file consisting of Python code. A module can define functions, classes and variables. A module can also include runnable code.
	Functions of Math Module:
	ceil(x): Returns the smallest integer greater than or equal to x.
	floor(x): Returns the largest integer less than or equal to x.
	OR
	Positional Arguments: Arguments that are required to be passed to the function according to their position in the function header. If the sequence is changed, the result will be changes and if number of arguments are mismatched, error message will be shown.
	Example:
	def divi(a, b):
	print (a / b)
	>>> divi(10, 2)
	5.0
	>>> divi (20 / 10)
	2.0
	>>> divi (10)
	Error
	Default Argument: An argument that is assigned a value in the function header itself during the function definition. When such function is called without such argument, this assigned value is used as default value and function does its processing with this value.
	def divi(a, b = 1):
	print (a / b)
	>>> divi(10, 2)
	2
	5.0
	>>> divi(10)
	10.0
		2

	def callme():
	a= input("Enter a number:")
	if (abs(a)== a):
	print("You entered a positive number")
	else:
	a*=-2
	print ("Number made positive:" ,a)
		2

	callme() 	
29	OUTPUT: (ii) a. Minimum Number = 1 Maximum number = 3 b. Option (iv)	2
30	Domain of an attribute is the set of values from which a value may come in a column. E.g. Domain of section field may be (A,B,C,D).	2
31	fetchall()fetches all the rows of a query result. An empty list is returned if there is no record to fetch the cursor. fetchone() method returns one row or a single record at a time. It will return None if no more rows / records are available	2
32	WHERE clause is used to select particular rows that satisfy a condition whereas HAVING clause is used in connection with the aggregate function, GROUP BY clause. For ex. – select * from stu where marks > 90; This statement shall display the records for all the students who have scored more than 90 marks. On the contrary, the statement – select * from stu group by stream having marks > 90; shall display the records of all the students grouped together on the basis of stream but only for those students who have scored marks more than 90.	2
33	**hAPPY*nEW*yEAR***** 	2

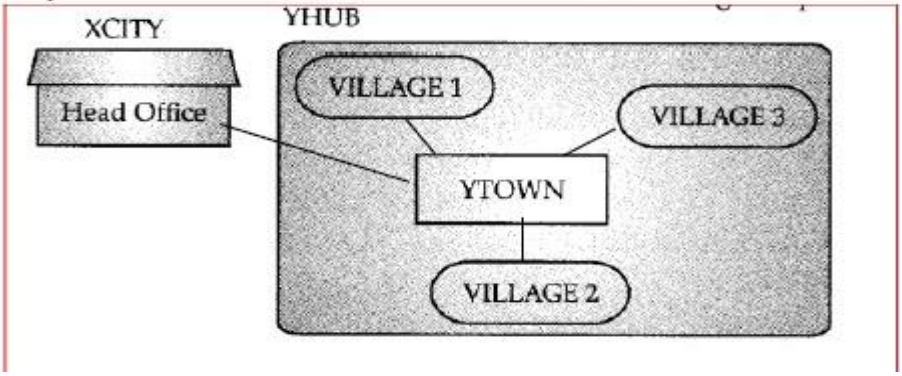
34	def Display (X, n):
	for i in range(n):
	if X[i] % 2 == 0:
	X[i] /= 2
	else:
	X[i] *= 2
	print (X)
		3

35	def display ():
	file = open("test.txt" , "r")
	lines = file.readlines()
	for l in lines:
	if l[0]== "b" or l[0] == "B":
	print(l)
	file.close()
	or
	def count_word():
	f = open("story.txt", "r")
	count = 0
	x = f.read()
	word = x.split()
	for i in word:
	if i == "vidyalaya":
	count = count + 1
	print ("my occurs", count, "times")
		3

36	(i) 43000 ii) Max (DOB) Min(DOB) 08-10-1995 05-07-1993 iii) Gender Count(*) F 3 M 3	3

37	def Push(STACK,SET):
	for i in SET :
	if i%2==0:
	STACK.append(i)
	print("Updated stack is :",STACK)
	
	OR
	def POP(STACK):
	if STACK==[] :
	print("Stack is empty")
	else:
	print(STACK.pop())
	
	½ marks for correct header
	1½ marks for correct logic
	½ mark for proper use of append or pop function
	½ mark for correct output	

38	Answers: (i) YTOWN Justification:-Since it has the maximum number of computers. It is closet to all other locatios. 80-20 Network rule. (ii) Optical Fiber LAYOUT	5



(iii) Switch or Hub

(iv) Video conferencing or VoIP or any other correct service/protocol

(v) Firewall- Placed with the Server at YHUB.

39 (i) Primary key (Table : Party) - PartyId
Primary key (Table : Client) - ClientId
(ii) There is no discrepancy. PartyId is not the Primary key in table Client, hence repetition is permissible
(III) SELECT CLIENTNAME, PHONE, PARTY.PARTYID, DESCRIPTION FROM PARTY, CLIENT WHERE PARTY.PARTYID = CLIENT.PARTYID AND NOOFGUESTS> 50;
(IV) SELECT CLIENTID, ADDRESS, NOOFGUESTS FROM CLIENT WHERE ADDRESS LIKE '%Adarsh%'

(V)

ClientId	ClientName	NoOfGuests	Description	CostPerPerson
C101	A.K.Antony	80	Birthday	400
C103	Rashi Khanna	50	Birthday	400
C104	S.K.Chandra	100	Engangement	450

5

40		5

```
import pickle
record = []
while True:
   rollno = int(input("Enter your rollno: "))
   name = input("Enter your name: ")
    marks = int(input("enter your marks obtained: "))
     data = [rollno, name, marks]
     record.append(data)
     choice = input("Do you want to enter more records: ")
    if choice.upper() == "N":
          break;
f1 = open("E:\Student.dat", "wb")
pickle.dump(record, f1)
print ("Records added....")
f1.close()
```

OR

```
import pickle
f1 = open("E:\Student.dat", "rb")
Stud_rec = pickle.load(f1)
rno = int(input(“Enter the roll no to search: ”))
flag = 0
for r in Stud_rec:

    if rno == r[0]:
        print (rollno, name, marks)
        flag = 1
if flag == 0:
       print(“Record not found…”)
f1.close()
```

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -2
Class: XII
Subject: Computer Science (083)
MARKING SCHEME

MaximumMarks:70 **Time Allowed: 3hours**

	Part – A **Section - I**	
1	While , remaining all are keywords	1
2	'Wse o'	1
3	**“ r “, for reading.** **“ w “, for writing.** **“ a “, for appending.** **“ r+ “, for both reading and writing.**	1
4	b) <	1
5	3	1
6	Dict={10:"Good", 2: "Better",3 : "Best"}	1
7	tuple	
8	sqrt()	1
9	SMTP	1
10	Phishing	1
11	Create ,Drop	1
12	Select name from student where subject is Null;	1
13	sum()	1
14	D. All	1
15	Co-axial	1
16	(c) tuple	1
17	'iend'	1
18	>>desc exam or describe exam	1
19	Virtual private network	1
20	b) Distinct	1
21	Star	1

	Part – A **Section - II**	
22	Answers: i.Degree-4 Cardinality-5 ii.AdmissionNo iii.insert into student values(012368,'Kamlesh','Sharma','2004-01-01') iv.Delete command v.Drop table student (Any 04)	1 1 1 1 1
23	a) Name the module he should import in Line 1. import csv b) In which mode, Sanjay should open the file to add data into the file a or a+ c) Fill in the blank in Line 3 to read the data from a csv file. reader d) Fill in the blank in Line 4 to close the file. close() a) Write the output he will obtain while executing Line 5. Atul 1111111111") Arun 2222222222") Amit 3333333333")	1 1 1 1 1
	Part – B	
24	a.40 b.True	2
25	Virus: Virus is a computer program or software that connect itself to another software or computer program to harm computer system. When the computer program runs attached with virus it perform some action such as deleting a file from the computer system. Virus can't be controlled by remote. Trojan Horse: Trojan Horse does not replicate itself like virus and worms. It is a hidden piece of code which steal the important information of user. For example, Trojan horse software observe the e-mail ID and password while entering in web browser for logging. OR Web Page is a document or a page where there is information. We can see those pages in the browser. Web Page is a single page with information. It can be in any form like texts, images or videos. Whereas the Website is a collection of webpages. The website has its own domain name which is unique throughout the world. Anything can be stored on a website like photos, videos, texts etc .Popular example of online shopping : Amazon,Flipcart etc	2

26	½ Mark for each correct expansion Internet Protocol. Metropolitan Area Network Network Interface Card Unshielded Twisted pair	2

27	The continue statement is used to skip the rest of the code inside a loop for the current iteration only. Loop does not terminate but continues on with the next iteration.
	for val in "string":
	if val == "i":
	continue
	print(val)
	
	print("The end")
	
	The break statement terminates the loop containing it. Control of the program flows to the statement immediately after the body of the loop.
	If the break statement is inside a nested loop (loop inside another loop), the break statement will terminate the innermost loop.
	for val in "string":
	if val == "i":
	break
	print(val)
	
	print("The end")
	OR
	A global variable is a variable that is accessible globally. A local variable is one that is only accessible to the current scope, such as temporary variables used in a single function definition.
	q = "I love coffee" # **global variable**
	def f():
	p = "Me Tarzan, You Jane." # **local variable**
	print p
	f()
	print q
		2

	Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction: def **Data**: *# Data( )* w= **input("Enter a number")** *# int(input("Enter a number"))* if w % 2 =0: #w%2==0	2

	print (w, "is even Value") **elseif** w<0: *# elif* print (w, "should be positive Value") **else;** *# else:* print (w, "is odd Value")	
29	Maximum value of FROM = 3 Maximum value of TO = 4 (ii) 30#40#50#	2
30	Constraints are the checking condition which we apply on table to ensure the correctness of data . example primary key, nut null, default, unique etc 1 mark for definition. 1 mark for 2 examples.	2
31	import mysql.connector as mydb conn= mydb.connect(host="localhost", user="root", passwd="1234") cur=conn.cursor() cur.execute("INSERT INTO student values(5,'Ashok',47);") cur.commit() ½ mark for import ½ for connection ½ for execute ½ for commit	2
32	½ mark for each correct expansion Data Definition Language, Data Manipulation Language ½ mark for each correct example DDL: create,drop,alter DML : insert,update,delete	2
33	**15 # 5** **5 # 10** **25 # 5**	2

34	3 marks for correct program, one possible code is below
	L1= [1,1,2,3,5,8,13,21,34,55,89]
	L2= [20,1,2,3,4,5,6,7,8,9,10,11,12,13]
	L3=[]
	temp_L1=list(set(L1))
	temp_L2=list(set(L2))
	for i in temp_L1:
	for j in range(len(temp_L2)):
	if i == temp_L2[j]:
	L3.append(i)
	#L3=temp_L1+temp_L2
	L3=list(set(L3))
	L3.sort()
	print(L3)
		3

35	def COUNT_AND( ):
	count=0
	file=open('STORY.TXT','r')
	line = file.read()
	word = line.split()
	for w in word:
	if w in ['AND','and','And']:
	count=count+1
	file.close()
	print(count)
	(½ Mark for opening the file)
	(½ Mark for reading word)
	(½ Mark for checking condition)
	(½ Mark for printing word)
	OR
	def DISPLAYWORDS( ):
	count=0
	file=open('STORY.TXT','r')
	line = file.read()
	word = line.split()
	for w in word:
	if w[0]=="T" or w[0]=="t":
	count=count+1
	file.close()
	print(count)
	(½ Mark for opening the file)
	(½ Mark for reading word)
	(½ Mark for checking condition)
	(½ Mark for printing word)
		3

36	(i) 200000, 65000 (ii) Vijay Singh Tomar President 130000 Sumit Sinha Vice President 110000 Mohit Kumar Vice President 125000 (iii) 101 1 102 2 103 2	3

37

```
def PUSH(Arr):
    s=[]
    for x in range(0,len(Arr)):
        if Arr[x]%5==0:
            s.append(Arr[x])
        if len(s)==0:
            print("Empty Stack")
        else:
            print(s)
L=[5,10,15,20,3]
PUSH(L)
```

OR

```
def popStack(st) : # If stack is empty
        if len(st)==0:
            print("Underflow")
        else:
            L = len(st)
            val=st[L-1]
            print(val)
            st.pop(L-1)
popStack(L)
```

½ marks for correct header
1½ marks for correct logic
½ mark for proper use of append or pop function
½ mark for correct output

38 Answers: 5

i. Suggest the most suitable place (i.e., Block/Center) to install the server of this organization with a suitable reason.
Balod, Maximum Computers

ii. Suggest an ideal layout for connecting these blocks/centers for a wired

	connectivity. **Any suitable layout** iii. Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices? **Switch** iv. Suggest the placement of a Repeater in the network with justification. **Raipur to Bilaspur Block if direct connection is there** v. The organization is planning to connect its new office in Delhi, which is more than 1250 km current location. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer. **WAN: spread over more than one city**	
39	i) Select * from School; ii) select SCHOOL.TEACHERNAME, SCHOOL.CODE, ADMIN.DESIGNATION from SCHOOL, ADMIN where gender='MALE'. iii) select SUBJECT, count(*) from SCHOOL group by SUBJECT; iv) select * from SCHOOL where DOJ>' 01/01/1999' order by EXPERIENCE desc; v) delete from SCHOOL where EXPERIENCE<10; (1 mark for each correct answer)'	5

40 A binary file named "EMP.dat" has some records of the structure [EmpNo, EName, Post, Salary] 5

(a)Write a user-defined function named NewEmp() to input the details of a new employee from the user and store it in EMP.dat.

(b) Write a user-defined function named SumSalary(Post) that will accept an argument the post of employees & read the contents of EMP.dat and calculate the SUM of salary of all employees of that Post.

Or

A binary file named "TEST.dat" has some records of the structure [TestId, Subject, MaxMarks, ScoredMarks]

Write a function in Python named DisplayAvgMarks(Sub) that will accept a subject as an argument and read the contents of TEST.dat. The function will calculate & display the Average of the ScoredMarks of the passed Subject on screen.

```
import pickle

def NewEmp():
    print("Enter the details of an employee:")
    no=int(input("Enter the Empno"))
    name=input("Enter the name")
    post=input("Enter the post")
    sal=float(input("Enter the salary"))

    erec=[no,name,post,sal]
    f=open("EMP.dat","ab")
    pickle.dump(erec,f)
    print("New record saved")
    f.close()

def SumSalary(Post):
    f=open("EMP.dat","rb")
    count=0
    sum=0

    try:
        while True:
            rec=pickle.load(f)
            if rec[3]==Post:
                sum+=rec[4]
    except EOFError:
        f.close()

    print("Sum of Salary :",sum)
```

OR

```
def DisplayAvgMarks(Sub):
    f=open("ABC.dat","rb+")
    count=0
    sum=0

    try:
        while True:
            pos=f.tell()
            rec=pickle.load(f)
            print(rec)
            if rec[1]==Sub:
                sum+=rec[3]
                count+=1
    except EOFError:
        f.close()

    print("Average marks scored :",sum/count)
```

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -3
Class: XII
Subject: Computer Science (083)
MARKING SCHEME

MaximumMarks:70 **Time Allowed: 3hours**

	Part – A **Section - I**	
1	1abcd ,starting from number	1
2	'C xm22 '	1
3	**" r+ ", for both reading and writing.**	1
4	**c) =** <	1
5	wed	1
6	Dict={"Day":31, "Month":12 ,"Year":2020}	1
7	'tuple' object has no attribute 'len'	
8	The round( ) function is used to convert a fractional number into whole as the nearest next whereas the floor( ) is used to convert to the nearest lower whole number. E.g. round(5.8) = 6 and floor(5.8)= 5	1
9	POP3	1
10	Phishing is a cybercrime in which a target or targets are contacted by email, telephone or text message by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking and credit card details, and passwords.	1
11	A) specify what table we are selecting or deleting data FROM	1
12	Answer: **Option D** Solution: MAX function is used to get the maximum value from a column. To get the maximum salary drawn by an employee, the query would be: SELECT MAX (salary) FROM employee;	1
13	Answer: c Explanation: SQL does not include total as a built in aggregate function. The avg is used to find average, max is used to find the maximum and the count is used to count the number of values.	1
14	String pattern matching	1
15	1. Optical fibre 2. Satellite etc.	1
16	a. (1, 2, 1, 2) -Justification: * operator concatenates tuple.	1
17	[25, 10]	1
18	>>Select * from Computerlab;	1
19	HTTP HyperText Transfer Protocol.	1

20	The PRIMARY KEY constraint uniquely identifies each record in a table. Primary keys must contain UNIQUE values, and cannot contain NULL values .	1
21	Switch/Hub and Repeaters.	1
	Part – A **Section - II**	
22	Answers: (i) **Std_id** (ii) Create database Raipur (iii) . Insert into Stu_Data Values (6,"Somesh","7th",400,"Raigarh") (iv) Desc Stu_Data; (v) Select * from Stu_Data where marks>450; (Any 04)	1 1 1 1 1
23	a) import csv b) newFileWriter.writerow([1,'xyz']) c) newFileReader = csv.reader(newFile) d) User_Id Beneficiary 1 xyz e) newFile.close()	1 1 1 1 1
	Part – B	
24	a. 14 b. False	2
25	In packet switching, a fixed size of packet that can be transmitted across the network is specified. All the packets are stored in the main memory instead of disk. As a result accessing time of packets is reduced. While circuit switched networks are based on the direct connection of two computers, with the connected computers making exclusive use of a single connecting link. Or The two reasons for networking are: It helps the user to share data files. It allows the user to communicate.	2
26	½ Mark for each correct expansion (a) Voice over internet protocol (b) Simple mail transfer protocol (c) Time Division Multiple Access (d) Transmission Control Protocol /Internet Protocol	2

27	Actual parameters are those parameters which are used in function call statement and formal parameters are those parameters which are used in function header (definition). e.g. def sum(a,b): # a and b are formal parameters return a+b x,y=5,10 res=sum(x,y) #x and y are actual parameters or Scope of variables refers to the part of the program where it is visible, i.e, the area where you can use it	2

28	Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction:
	a=int(input("ENTER FIRSTNUMBER"))
	b=int(input("ENTER SECOND NUMBER"))
	c=int(input("ENTER THIRD NUMBER"))
	if a>b and a>c:
	print("A IS GREATER")
	if b>a and b>c:
	print(" B IS GREATER")
	if c>a and c>b:
	print(" C IS GREATER ")
		2

29	Correct output (ii) 11@14@18@ Minimum = 11 Maximum = 19 (½ mark each for minimum and maximum value) (1 mark for correct option)	2
30	DDL command are used to create, alter and remove database schemas like table, index etc. Example of DDL Commands are Create Table, Create Index, Drop Table, Alter Table etc. DML commands are used to retrieve, insert , delete and update the data of the table. Example of DML commands are Select, Insert , Delete and Update Command. (1 mark for each correct definition of DDL and DML)	2
31	The MySQLCursor of mysql-connector-python (and similar libraries) is used to execute statements to communicate with the MySQL database. Using the methods of it you can execute SQL statements, fetch data from the result sets, call procedures. You can create Cursor object using the cursor() method of the Connection object/class.	2

32	Differences between CHAR and VARCHAR in MySQL − **(Any Two Differences)**	2
33	Find and write the output of the following python code: **Output :** **XX** **Y** **ZZ**	2
34	**s=0** **a=[10,20,5,6,30,45]** **for i in a:** **if i%2==0:** **s=s+i** **print("Sum of all even numbers ",s)**	3

35	def count_digit():
	f = open("data.txt")
	content = f.read()
	count = 0
	for ch in content:
	if ch in "0123456789":
	count += 1
	print(count)
	f.close()
	(½ mark for opening, ½ mark for initializing and printing count, ½ mark for reading content and using loop, ½ mark for checking condition)
	OR
	def count_word():
		3

CHAR Data Type	VARCHAR Data Type
Its full name is CHARACTER	Its full name is VARIABLE CHARACTER
It stores values in fixed lengths and are padded with space characters to match the specified length	VARCHAR stores values in variable length along with 1-byte or 2-byte length prefix and are not padded with any characters
It can hold a maximum of **255** characters.	It can hold a maximum of 65,535 characters.
It uses static memory allocation.	It uses dynamic memory allocation.
mysql>create table emp(name CHAR(20)); Query OK, 0 rows affected (0.25	mysql>create table emp1(name VARCHAR(20)); Query OK, 0 rows affected (0.21

```
f = open("poem.txt")
words = f.read().split()
count = 0
for word in words:
    if word[0] in "sS":
        count += 1
print(count)
f.close()
```

(½ mark for opening, ½ mark for initializing and printing count, ½ mark for reading content and using loop, ½ mark for checking condition)

36

Write SQL queries (i) to (iii) based on the relation

(i)

Sub	Sum(Average)
Physics	195
Comp Sc	130
Chemistry	117
Math	195

(ii)

Max(Stipend)	Min(Stipend)
500	250

(iii)

DIV	Count(*)
I	8
II	2

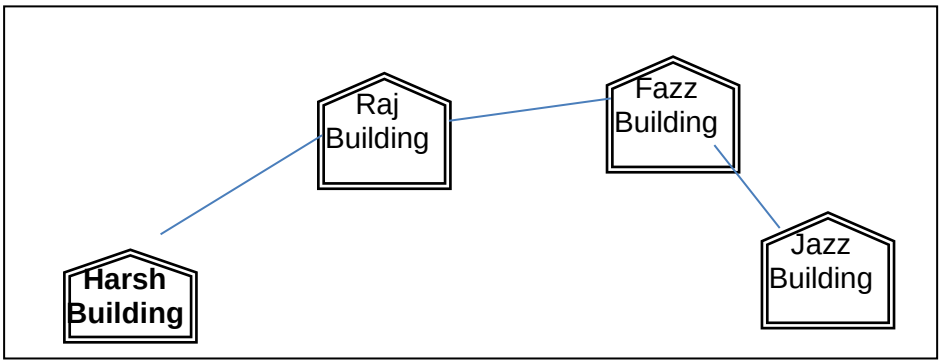
3

37

```
def PUSH(stk,item)
    stk.append(item)
    top=len(stk)-1
    print(stk)
    Or
def POP(stk):
   if stk==[]:
       return "Underflow"
    else:
        item = stk.pop()
        print(item)
```

½ marks for correct header

1½ marks for correct logic

	½ mark for proper use of append or pop function ½ mark for correct output	
38	Answers: (1)  2) Most suitable place/building to house the server of this organization would be Raj building, as this building contains the maximum number of computers, thus decreasing the cabling cost for most of the computes as well as increasing the efficiency of the maximum computers in the network. 3) (i) Repeater is not required as the distance between building is less than 100 mts. (ii) Switch / Hub will be needed in all the buildings, to interconnect the computers in each building. 4) MAN, because it is going to connect two different cities 5.Ethernet Cable	5
39	a) To show firstname,lastname,address and city of all employees living in paris >> **select Firstname,Lastname,Address,City from employee where City=”Paris”** b) To display the content of Employee table in descending order of Firstname. >> **Select * from Employee order by Firstname desc** c) To display the firstname,lastname and total salary of all managers from the tables Employee and empsalary , where total salary is calculated as salary+benefits. >> **Select Employee.Firstname,Lastname,total_salary=Emp.salary+Emp.benefits from Employee ,Emp.Salary where EmpSalary.Designation=”Manager”** d) To display Empid, Designation and Salary of all employee from EmpSalary table whose benefits more than 14000. >> **Select Empid,Designation,Salary from EmpSalary where benefits>14000;** e)To display empid, First Name and city from employees table whose lastname start with s. >>**Select Empid ,FirstName,City from Employee where name like ‘s%’**	5

40	import pickle
	def Count():
	fobj=open("EMPLOYEE.DAT","rb")
	num = 0
	try:
	while True:
	rec=pickle.load(fobj)
	if rec[2] > 50000:
	print(rec[0],rec[1],rec[2],sep="\t")
	num = num + 1
	except:
	fobj.close()
	return num
	
	OR
	
	import pickle
	def search():
	f=open(“emp.dat”,”rb”)
	while True:
	try:
	d=pickle.load(f)
	if(d[‘sal’]>=25000 and d[‘sal’]<=30000):
	print(d)
	except EOFError:
	breakf.close()½ mark for
		5

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -4
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	**Section-I** **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	**Marks allocated**
1	Which of the following is / are valid identifier/s in Python: continue, 123Road, _123A, MyHome	1
2	What do we use to define a block of code in Python language? a. Key b. Brackets c. Indentation d. None of these	1
3	……is a process of storing data into files and allows to performs various tasks such as read, write, append, search and modify in files.	1
4	**What is the output of the following code :** >>> print(9//2) **(A) 4.5** **(B) 4.0** **(C) 4** **(D) Error**	1
5	What is the result of code shown below? tuple1 = (10, 20) tuple2 = (30, 40) tuple1, tuple2 = tuple2, tuple1 print(tuple2)	1

	print(tuple1)	
6	Write a statement in Python to declare a dictionary whose keys are Mon,Tues,Wed,Thur,Fri,Sat and values are “CS”,”Phy”,”Chem”,”Maths” “Eng” and “Hindi” respectively	1
7	A tuple is declared as T = (10,20), (10,20,40), (50,30) What will be the value of min(T) ?	1
8	What are the built-in types of python?.	1
9	A …… is a device that works like a bridge but can handle different protocols	1
10	Posing as someone else online and using his/her personal/financial information shopping or posting something is a common type of cyber-crime these days. What are such types of cyber-crimes collectively called?	1
11	What is the purpose of using references word in terms of DBMS/RDBMS?	1
12	Which clause of select command is used to group the rows on the basis of common values in a column?	1
13	Which of the following is/are built in aggregate function in SQL? a) sum b) min c)count d) All	1
14	Sourabh wants to remove all rows from the table ACCT. But he needs to maintain the structure of the table. Which command is used to implement the same?	1
15	Write one characteristic each for 2G and 3G mobile technologies.	1
16	What will be the output of the following Python code? S= “Hello Friends” print S[:-4] print S[-4:]	1
17	How many times is the following loop executed? i = 100 while (i<=200): print i i + =20	1
18	While creating table ‘customer’, Maneesha forgot to add column ‘price’. Which command is used to add new column in the table. Write the command to implement the same.	1
19	Write two characterstics of Wi-Fi..	1
20	What is relation? Define the relational data model.	1
21	Identify the Domain name and URL from the following: http://www.income.in/home.aboutus.hml.	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	**As a database administrator, answer any 4 of the following questions:** Name of the table : S_DRINK The attributes are as follows: Drinkcode, Calories – Integer Price - Decimal Dname - Varchar of size 20	

Drinkcode	Dname	Price	Calories
101	Lime and Lemon	20.00	120
102	Apple Drink	18.00	120
103	Nature Nectar	15.00	115
104	Green Mango	15.00	140
105	Aam Panna	20.00	135
106	Mango Juice Bahar	12.00	150

a. Identify the attributes that can be called Candidate keys. 1

b. What is the cardinality and degree of the table S_DRINK 1

c. Include the following data in the above table. 1

Drinkcode = 107, Dname = "Milkshake" and Calories = 125

d. Give the command to remove all the records from the table. 1

e. Write a query to create the above table with Drinkcode as the Primary Key . 1

23 Anil of class 12 is writing a program to read the details of Games performance and store in the csv file "Games.csv" delimited with a tab character. As a programmer, help him to achieve the task.

[Answer any 4].

```
import _____ #Line 1
f = open("Games.csv","a")
wobj = csv._____(f, delimiter = '\t')   # Line 2
wobj.writerow( ['Sport', 'Competitions', 'Prizes Won'] )
ans = 'y'
  i = 1
while ans == 'y':
    print("Record :", i)
    sport = input("Sport Name :")
    comp = int(input("No. of competitions participated :"))
    prize = int(input("Prizes won:"))
    record =_____   # Line 3
    wobj._____(rec)   # Line 4
    i += 1
    ans = input("Do u want to continue ? (y/n) :")
f._____   # Line 5
```

	a) **Name the module he should import in Line 1** **b) To create an object to enable to write in the csv file in Line 2** **c) To create a sequence of user data in Line 3** **d) To write a record onto the writer object in Line 4** **e) Fill in the blank in Line 5 to close the file.**	1 1 1 1 1
	Part B	
	Section-I	
24	Evaluate the following expressions: a) (2**2)*(3**3)//(2**4) b) 2>1 and 1<0 and not 4>2	2
25	What is the function of Modem? OR In networking, what is WAN? How is it different from LAN?.	2
26	Expand the following terms: (a) WLL (b) 5G (c) POP3 (d) Gbps	2
27	Which string method is used to implement the following: To count the number of characters in the string. To check whether given character is letter or a number. OR What are the advantages of keyword arguments?	2

28	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	
	function double(x):
	return 2*x
	I =int(input())
	N = double (I)
	if N= 100:
	print(“Input is equal to 50”)
	else:
	print(“Double of the Number”+ I + “is” + N)
		2

29	What are the possible outcome(s) expected from the following python code? Also specify the maximum and minimum values that can be assigned to variable .
	import random
	def Show():
	p = "MY PROGRAM"
	i = 0
	while p[i] != "R":
	l = random.randint(0,3) + 5
	print(p[l],"-")
	i += 1
	Show()
	(i) R – P – O – R – (ii) P – O – R – Y –
		2

	(iii) O – R – A – G – (iv) A– G – R – M –	
30	Differentiate between Drop and Delete commands.	2
31	Answer the following : i) Name the package for connecting Python with MySQL database. ii) What is the purpose of cursor object?	2
32	Answer the following : (a) Write SQL query to add a column total price with datatype numeric and size 10, 2 in a table product. (b) Sachin needs to display name of teachers, who have "0" as the third character in their name. He wrote the following query. SELECT NAME FROM TEACHER WHERE NAME = "$$0?"; **But the query is'nt producing the result. Identify the problem.**	2

33	Find and write the output of the following python code:
	def Find():
	L = "computer"
	x = " "
	count = 1
	for i in L:
	if i in ['a', 'e',' i', 'o', 'u']:
	x = x + i
	else:
	if (count%2!= 0):
	x = x + str(len(L[:count]))
	else:
	x = x + i
	count = count + 1
	print(x)
	Find()
		2

	Part B(Section II)	
34	Write a program that rotates the elements of a list so that the element at the first index moves to the second index, the element in the second index moves to the third index, etc., and the element in the last index moves to the first index. Suppose List is : lis=[1,2,3,4,5] Result should be [5, 1, 2, 3, 4]	3
35	Write a function myfile() in python to read the text file "Sample.txt" and display those lines which start with the alphabet 'A' OR Write a function Display_Result( ) in python to read lines from a text file "XYZ.txt" and display those words , which are greater than equal to 3 characters.	3

36 | Write output for queries (i) to(iii), which are based on the table : Books. | | 3

Book_id	Book_name	Author_name	Publisher	Price	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	5
F0001	The Tears	William hopkin	NIL	650	20
T0001	My First Py	Brain& Brooke	EPB	350	10
T0002	Brain works	A.W. Rossaine	TDH	450	15
F0002	Thunderbolts	Anna Roberts	NIL	750	5

i. Select Count(Publisher) from Books;
ii. Select Max(Price) from books where qty >=15;
iii. Select count(distinct publishers) from books where Price>=400;

37 | Write AddCustomer(Customer) method in Python to add a new customer, considering it to act as a PUSH operation of the stack data structure. Also display the contents of the Stack after PUSH operation. Details of the Customer are: CID and Name.

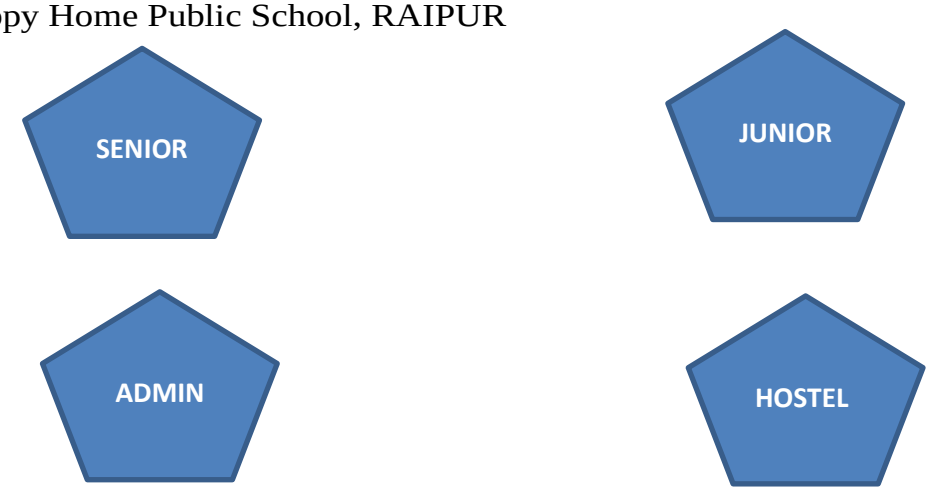
OR

Write RemoveCustomer(Customer) method in Python to remove a Customer, considering it to act as a POP operation of the stack data structure. Also return the value deleted from stack. | 3

Section- III

38 | Happy Home Public School, RAIPUR is Setting up the network between its Different Wings of school campus. There are 4 wings named as SENIOR(S), JUNIOR (J), ADMIN (A) and HOSTEL (H). | 5

Happy Home Public School, RAIPUR



Distance between various wings are given below:

Wing A to Wing S	100m
Wing A to Wing J	200 m
Wing A to Wing H	400 m
Wing S to Wing J	300 m
Wing S to Wing H	100 m
Wing J to Wing H	450 m

Number of Computers installed at various wings are as follows

Wing S	Number of Computers
Wing A	20
Wing S	150
Wing J	50
Wing H	25

1. Suggest the best wired medium and draw the cable layout to efficiently connect various wings of Happy Home Public School, RAIPUR.
2. Name the most suitable wing where the Server should be installed. Justify your answer.
3. Suggest a device/software and its placement that would provide data security for the entire network of the School
4. Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphone/laptop users in the campus of Happy Home Public School, RAIPUR
5. Suggest the placement of the Hub/Switch device with justification.

39 Write SQL command for (i) to (v) on the basis of the table **Trainer & Course** 5

Trainer

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNANA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

Course

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

a. Display the Trainer Name, City & Salary in descending order of their Hiredate.
b. To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.
c. To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000
d. To display number of Trainers from each city.
e. To Display the TID, TNAME and SALARY whose TNAME starts with 'M'.

40 Given a binary file "record.dat" has structure (Emp_id, Emp_name, Emp_Salary). Write a function in Python Rec_count() in Python that would read contents of the file "record.dat" and display the details of those employee whose salary is less than 20000 — 5

OR

A binary file "Stu.dat" has structure (rollno, name, marks).

(i)Write a function in Python add_record() to input data for a record and add to Stu.dat.

(ii)Write a function in python Search_record() to search a record from binary file "Stu.dat" on the basis of roll number

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
SAMPLE PAPER -5
Class: XII
Subject: Computer Science (083)

Maximum Marks:70 **Time Allowed: 3hours**

General Instructions:

1. **This question paper contains two parts A and B. Each part is compulsory.**
2. **Both Part A and Part B have choices.**
3. **Part-A has 2sections:**
   a. **Section – I is short answer questions, to be answered in one word or one line.**
   b. **Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.**
4. **Part - B is Descriptive Paper.**
5. **Part- B has three sections**
   a. **Section-I is short answer questions of 2 marks each in which two question have internal options.**
   b. **Section-II is long answer questions of 3 marks each in which two questions have internal options.**
   c. **Section-III is very long answer questions of 5 marks each in which one question has internal option.**
6. **All programming questions are to be answered using Python Language only**

Q.NO	**Section-I** **Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.**	**Marks allocated**
1	Out of the following, find those identifiers, which cannot be used for naming Variables or functions in a Python program: **Total * Tax, While, class, Switch, 3rd Row, finally, Column 31, Total**	1
2	What is the output when following code is executed? >>>**S="Central Board of Secondary Education "** >>>**S[1:70:10]**	1
3	A _____ is plain text file which contains list of data in tabular form.	1
4	Which of the following is/are valid Membership Operators in Python? a) ? b) < c) not in d) and e) in	1
5	What will be the output of the following Python code? >>>my_tuple = (1, 2, 3, 4) >>>my_tuple.append((5, 6, 7)) >>>print len(my_tuple) a) 1 b) 2 c) 5 d) Error	1

6	Given is the following Dictionary dict={1:'A',2:'B',3:'C',6:'D',4:'E'} ? What is the output of the command print(dict[6])	1
7	Which of the options out of (i) to (iv) the correct data type for the variable lst is as defined in the following Python statement? lst = ('A', 'E', 'I', 'O', 'U') (i) List (ii) Dictionary (iii) Tuple (iv) Array	1
8	Name the Python Library modules which need to be imported to invoke the following functions : 1. sin() 2. ceil()	1
9	What is MAC Address?	1
10	Credit card frauds, phishing, cyber bullying, spamming are kind of ……crime	1
11	Which keyword eliminates redundant data from a query result?	1
12	What are alternate keys?	1
13	What is the use of UNIQUE constraint in MYSQL?	1
14	Which command is used to delete a table schema i) Delete ii) Drop iii) Del iv) Remove	1
15	What is Baud rate?	1
16	Write the output of the following code of python: A={10:1000,20:2000,30:3000,40:4000,50:5000} print A.keys() print A.values()	1
17	Rewrite the following for loop into while loop: for a in range(90, 9, -9): print (a)	1
18	Which is the table constraint used to stop null values to be entered in the field (i) Unique (ii) Not NULL (iii) Not Empty (iv) None	1
19	Name the media preferably used in the Internet Backbone of Country	1
20	In SQL, write the query to display the list of database in the server.	1
21	10:B4:03:56:2E:DF is an example of …….	1
	Section-II **Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark**	
22	A Ramco Book Shop is considering to maintain their inventory using SQL to store the data. As a database administer, Neelmadhav has decided that: • Name of the database -Ramco • Name of the table -shop • The attributes of shop are as:	

ICODE,SCODE,QTY,RATE - numeric
INAME– character of size 25
BUYDATE -date

ICODE	INAME	SCODE	QTY	RATE	BUYDATE
1005	Note Book	13	120	24	03-May-13
1003	Eraser	12	80	5	07-Aug-13
1002	Pencil	12	300	10	04-Mar-13
1006	Bag	11	70	300	27-Dec-12
1001	Pen	13	250	20	18-Jul-13
1004	Sharpener	12	100	10	23-Jun-13
1009	Box	11	50	80	17-Dec-12

a) Identify the attribute best suitable to be declared as a primary key, 1

(b) Write the degree and cardinality of the table shop. 1

(c) Insert the following data into the attributes respectively in the given table shop
ICODE=1010,INAME=”Bag” ,RATE=240 1

(d) NeelMadhav wants to remove the table shop from the database Ramco. Which command will he use from the following: 1
a) DELETE FROM Ramco;
b) DROP TABLE shop;
c) DROP DATAB AS shop;
d) DELETE shop FROM Ramco;

(e) Now Neelmadhav wants to know the Primary key of the table along with data types of all the columns. Which query should he write? 1

23 Pratap is a software developer for KVS he has written a program to create a “**kvs.txt”** file that will have the data. Fill the blank with appropriate command / method

```
f = open('kvs.txt', 'w')
f.write('This is my Record File')

# Create save and close the file
f._____   #Line 1

# Open the file in read from beginning mode
f = open('kvs.txt', '___')    #Line 2

# Now read from the beginning first 5 characters
f.seek(___ , ___ )      #Line 3

#Now read from the end last 12 characters
f.seek(___ , ___ )      #Line 4

# reading the entire content of file from current position
rea = f._____   #Line 5
print(rea)
f.close()
```

i) Write the method to save and close the file ‘kvs.txt’ 1
ii) Write the file open mode to read from beginning 1
iii) Write the method parameter to read from beginning to 5 characters (offset) 1
iv) Write the method parameter to read from end to 12 characters (offset) 1
v)Write the method to read the file from correct position. 1

	Part B	
	Section-I	
24	Evaluate the following expressions: a) 10*1 * 2**4 - 4// 4 b) 1> -1 and 15 < 12 or not 2 > 1	2
25	Explain LAN, WAN and MAN with examples. OR Differentiate between Internet and Intranet.	2
26	Write the full form of the following: (i) LED (ii) Modem (iii)PPP (iv) ISP	2
27	What is the difference between built-in functions and modules?. OR Write definition of a Method MSEARCH(STATES) to display all the state names from a list of STATES, which are starting with alphabet M. For example: If the list STATES contains [“MP’,”UP”,”MH”,”DL”,”MZ”,”WB”] The following should get displayed MP MH MZ	2
28	Rewrite the following code in python after removing all syntax error(s).Underline each correction done in the code. 80=T for i in range(0,T) if i%2=0: print(i*10) Else: print(i+5)	2
29	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables Lower and Upper. import random as r val = 35 P = 7 Num = 0 for i in range(1, 5): Num = val + r.randint(0, P - 1) print(Num, " $ ", end = "") P = P - 1 (a) 41 $ 38 $ 38 $ 37 $ (b) 38 $ 40 $ 37 $ 34 $ (c) 36 $ 35 $ 42 $ 37 $ (d) 40 $ 37 $ 39 $ 35 $	2
30	What is the difference between UNIQUE and PRIMARY KEY constraint. Give a suitable example of both in a table containing some meaningful data..	2

31	Consider the following Python code is written to access the record of CODE passed to function: Complete the missing statements:
	
	def Search(eno):
	#Assume basic setup import, connection and cursor is created
	query="select * from emp where empno=_____".format(eno)
	mycursor.execute(query)
	results = mycursor._____
	print(results)
		2

32	Differentiate between alternate key and candidate key.	2

33	Write the output of following python code
	def result(s):
	n = len(s)
	m=''
	for i in range(0, n):
	if (s[i] >= 'a' and s[i] <= 'm'):
	m = m + s[i].upper()
	elif (s[i] >= 'n' and s[i] <= 'z'):
	m = m + s[i-1]
	elif (s[i].isupper()):
	m = m + s[i].lower()
	else:
	m = m + '#'
	print(m)
	
	result('Cricket'))
		2

	Section -II	
34	Write a program to input any string and to find the number of words in the string..	3
35	Write a function count_is_as() in Python that counts the number of "is" and "as" words present in a text file "STORY.TXT". If the "STORY.TXT" contents are as follows: *This is a Story of a Rabbit.* *He was as cunning as a Fox.* *The Story is very Interesting.* The output of the function should be: Count of is/as in file: 4 **OR** Write a function SRCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets S and R (including small cases s and r too). If the "STORY.TXT" contents are as follows: *This is a Story of a Rabbit.* *He was as cunning as a Fox.* *The Story is very Interesting.* The SRCount() function should display the output as: S or s : 9 R or r : 5	3

36 | Consider the following tables FACULTY and COURSES. Write SQL commands for the statements (i) to (iii). | 3

FACULTY

F_ID	Fname	Lname	Hire_date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000

COURSES

C_ID	F_ID	Cname	Fees
C21	102	Grid Computing	40000
C22	103	System Design	16000
C23	104	Computer Security	8000
C24	103	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

i) Select F_ID, sum(Fees) from COURSES group by F_ID;

ii) Select Max(Salary), Min(Salary) from Faculty;

iii) Select Fname, Lname from FACULTY where Lname like ='M%';

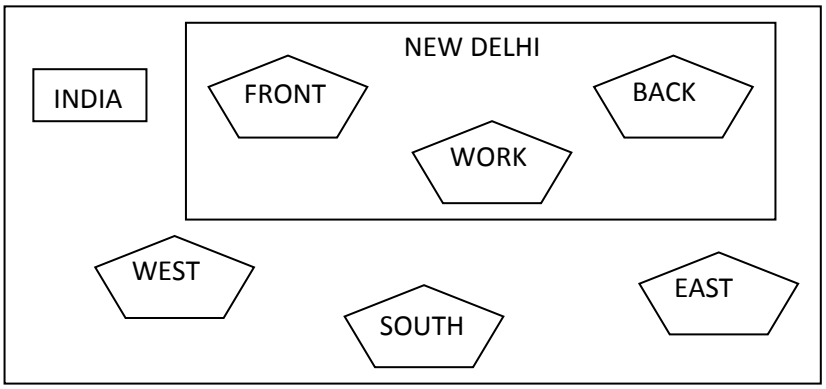
37 | Write PushStk(Car) and PopStk(Car) functions in Python to add a new Car and delete a Car from a list of Car specification, considering them to act as push and pop operations of the Stack data structure | 3

OR

Write a function in python named Drop_Data(d) where **d** is a stack implemented by a list of numbers. The function will display the popped element after function call.

Section- III

38 | Smart Connectivity Association is planning to spread their office in four major cities in India to provide regional IT infrastructure support in the field of Education & Culture. The company has planned to setup their head office in New Delhi in three locations and have named their New Delhi offices as "FRONT OFFICE", "BACK OFFICE", "WORK OFFICE". The company has three more regional offices namely "WEST OFFICE", "SOUTH OFFICE", "EAST OFFICE" Located in other three major cities of India. A rough layout of the same is as follow: | 5



Distance between Offices: **Number of Computers**

	Back Office to Front Office - 10 KM **Back Office to Work Office -70 mtr** **Back Office to East Office -1291 KM** **Back Office to West Office -790 KM** **Back Office to South Office -952 KM** **Back Office ----- 100** **Front Office ----- 20** **Work Office ----- 50** **East Office ----- 50** **West Office ----- 50** **South Office ----- 50** (i)Suggest network type for connecting each of the following sets of their offices: (a)Back Office and Work Office (b) Back Office and South Office (ii)Which device you will suggest to be produced by the company for connecting all the computers within each of their offices out of the following devices? a. Hub/Switch b. Modem c. Telephone (iii)Which of the following communication medium, you will suggest to be produced by the company for connecting their local offices in New Delhi for very effective and fast communication. a. Telephone cable b. Optical Fiber c. Ethernet Cable (iv)Suggest the layout for connecting each office. (v) Suggest the type of networking between Back Office to West Office LAN,MAN,WAN	
39	**Consider the following tables Shop and answer the following questions:** **ICODE** | **INAME** | **SCODE** | **QTY** | **RATE** | **BUYDATE** **1005** | **Note Book** | **13** | **120** | **24** | **03-May-13** **1003** | **Eraser** | **12** | **80** | **5** | **07-Aug-13** **1002** | **Pencil** | **12** | **300** | **10** | **04-Mar-13** **1006** | **Bag** | **11** | **70** | **300** | **27-Dec-12** **1001** | **Pen** | **13** | **250** | **20** | **18-Jul-13** **1004** | **Sharpener** | **12** | **100** | **10** | **23-Jun-13** **1009** | **Box** | **11** | **50** | **80** | **17-Dec-12** Write SQL commands for the following statements: (i) To display all the details of table shop in ascending order of Buydate. (ii) To display ICODE and INAME from the table shop whose QTY is more than 100. (iii) To display all the details of the table shop whose SCODE is12 and rate is more than 5 (iv) To display all the details from shop table whose INAME start with B. (v) To display all the details whose QTY between 80 to 150.	5
40	A binary file "Store.dat" has structure [ItemNo, Item_Name, Company, Price]. i. Write a function CountRec(Company) in Python which accepts the Company name as parameter and count and return number of Items by the given Company are stored in the binary file "Store.dat". ii. Write a function AddRecord(<List>) which accepts a List of the record [ItemNo, Item_Name, Company, Price] and appends in the binary file "Store.Dat"	5

	OR A binary file "SCHOOL.DAT" has structure [Roll_Num, Name, Percentage] i) Write a function Count_Rec() in Python that would read contents of the file "SCHOOL.DAT" and display the details of those students whose percentage is below 33 . Also display number of students scoring below 33%. ii) Write a function Disp_Rec(alphabet) in Python that would read contents of the file "SCHOOL.DAT" and display the details of those students whose name begin with the alphabet as passed as parameter to the function.	

तत् त्वं पूषन् अपावृणु

केन्द्रीय विद्यालय संगठन

केंद्रीय विद्यालय संगठन रायपुर संभाग

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