

केन्द्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर
Kendriya Vidyalaya Sangathan Regional Office Raipur



Class - XII

**Multiple Choice Question Bank
[MCQ] Term – I & Term- II**

Computer Science [083]
Based on Latest CBSE Exam Pattern
for the Session 2021-22

केंद्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर

Kendriya Vidyalaya Sangathan Regional Office Raipur

MESSAGE FROM DUPUTY COMMISSIONER



It is a matter of great pleasure for me to publish study material for different subjects of classes X and XII for Raipur Region. Getting acquainted and familiarized with the recent changes in curriculum and assessment process made by CBSE vide Circular No. 51 and 53 issued in the month of July 2021 will help students to prepare themselves better for the examination. Sound and deeper knowledge of the Units and Chapters is must for grasping the concepts, understanding the questions. Study materials help in making suitable and effective notes for quick revision just before the examination.

Due to the unprecedented circumstances of COVID-19 pandemic the students and the teachers are getting very limited opportunity to interact face to face in the classes. In such a situation the supervised and especially prepared value points will help the students to develop their understanding and analytical skills together. The students will be benefitted immensely after going through the question bank and practice papers. The study materials will build a special bond and act as connecting link between the teachers and the students as both can undertake a guided and experiential learning simultaneously. It will help the students develop the habit of exploring and analyzing the **Creative & Critical Thinking Skills**. The new concepts introduced in the question pattern related to case study, reasoning and ascertain will empower the students to take independent decision on different situational problems. The different study materials are designed in such a manner to help the students in their self-learning pace. It emphasizes the great pedagogical dictum that *'everything can be learnt but nothing can be taught'*. The self-motivated learning as well as supervised classes will together help them achieve the new academic heights.

I would like to extend my sincere gratitude to all the principals and the teachers who have relentlessly striven for completion of the project of preparing study materials for all the subjects. Their enormous contribution in making this project successful is praiseworthy.

Happy learning and best of luck!

Vinod Kumar
(Deputy Commissioner)

केंद्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर
Kendriya Vidyalaya Sangathan Regional Office Raipur

Our Patorn



Vinod Kumar
Deputy Commissioner
KVS RO Raipur



Smt. Biraja Mishra
Assistant Commissioner
KVS RO Raipur



Sh. A.K. Mishra
Assistant Commissioner
KVS RO Raipur

SUBJECT CO-ORDINATION BY



**Mrs. Sandhya Lakra,
Principal, KV No. 4 Korba**

CONTENT TEAM

Mr. R. K Upadhyay, PGT CS, K V Jagdalpur

Mrs. Tara Yadav, PGT CS, K V Bilaspur

Mr. P. L. Sahu, PGT CS, K V Dhamtari

Mr. Lokesh Singh, PGT CS, K V Mahasamund

Mrs. Soma Seal, PGT CS, K V CISF Bhilai

Mr. Raju Dixit, PGT CS, K V Manendragarh

COMPILATION, REVIEW & VETTING BY

Mr. Sumit Kumar Gupta, PGT CS, KV No 4, Korba

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

QUESTION BANK

S. No.	TERM - 1		TERM - 2	
	(Click the LINK to directly reach the content)	Page Number	(Click the LINK to directly reach the content)	Page Number
1	DISTRIBUTION OF MARKS	06	DISTRIBUTION OF MARKS	05
2	SYLLABUS	07-10	SYLLABUS	06-09
3	COMPUTATIONAL THINKING AND PROGRAMMING - 2	12-57	COMPUTER NETWORKS	97-129
			DATABASE MANAGEMENT	130-158
4	MODEL QUESTION PAPER	58-92	MODEL QUESTION PAPER	159-180
	SET 1		SET 1	
	SET 2		SET 2	
	SET 3		SET 3	

TABLE OF CONTENTS

Computer Science

CLASS-XII

Code No. 083

2021-22

1. Prerequisites

Computer Science- Class XI

2. Learning Outcomes

Student should be able to

- apply the concept of function.
- explain and use the concept of file handling.
- use basic data structure: Stacks.
- explain basics of computer networks.
- use Database concepts, SQL along with connectivity between Python and SQL.

3. Distribution of Marks:

Unit No.	Unit Name	Marks	Periods	
			Theory	Practical
I	Computational Thinking and Programming - 2	40	50	25
II	Computer Networks	10	10	---
III	Database Management	20	20	15
	Total	70	80	40

Unit No	Unit Name	Term-1	Term-2
I	Computational Thinking and Programming - 2	35	5
II	Computer Networks	---	10
III	Database Management	---	20
	Total	35	35

4. Unit wise Syllabus

TERM 1:

Unit I: Computational Thinking and Programming – 2

- Revision of Python topics covered in Class XI.
- Functions: types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope)
- Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths
- Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file
- Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file
- CSV file: import csv module, open / close csv file, write into a csv file using csv.writerow() and read from a csv file using csv.reader()

TERM 2:

Unit I: Computational Thinking and Programming – 2

- Data Structure: Stack, operations on stack (push & pop), implementation of stack using list.

Unit II: Computer Networks

- Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET)
- Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching)
- Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves)
- Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)
- Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree)
- Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP
- Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), 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: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key)
- Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command
- Aggregate functions (max, min, avg, sum, count), group by, having clause, joins : Cartesian product on two tables, equi-join and natural join
- Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications

5. Practical

S.No		Marks (Total 30)	Term-1 (15 Marks)	Term-2 (15 Marks)
1	Lab Test:			
	1. Python program	8	6	2
	2. 3 SQL Queries based on one/two table(s), 2 output questions based on SQL queries	4	—	4
2	Report file: Term – 1 : Minimum 15 Python programs based on Term - 1 Syllabus Term – 2 : <ul style="list-style-type: none"> • Minimum 3 Python programs based on Term-2 Syllabus • SQL Queries – Minimum 5 sets using one table / two tables. • Minimum 2 programs based on Python - SQL connectivity. 	7	4	3
3	Project (using concepts learnt in Classes 11 and 12) Term – 1 : Synopsis of the project to be submitted by the students (documentation only, may not submit the code during Term - 1) Term - 2 : Final coding + Viva voce (Student will be allowed to modify their Term 1 document and submit the final executable code.)	8	3	5
4	Viva voce	3	2	1

6. Suggested Practical List:

Term-1

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.
- Remove all the lines that contain the character 'a' in a file and write it to another 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.
- Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
- Create a CSV file by entering user-id and password, read and search the password for given user-id.

Term-2

Python Programming

- Write a Python program to implement a stack using list.

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
 - Joining of two tables.
- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing suitable module.

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 suitable module.

7. Suggested Reading Material

- NCERT Textbook for COMPUTER SCIENCE (Class XII)
- Support Materials on the CBSE website.

8. Project

The aim of the class project is to create something that is tangible and useful using Python file handling/ Python-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 sensitised to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.

TERM-1

Unit -1 : Computational Thinking and Programming-2

Topic: Revision of python topics covered in class XI

KEY POINTS:

Introduction to Python

- **Python** is an open source, object oriented HLL developed by Guido van Rossum in 1991
- **Tokens**- smallest individual unit of a python program.
- **Keyword**-Reserved word that can't be used as an identifier
- **Identifiers**-Names given to any variable, constant, function or module etc.
-

Classify the following into valid and invalid identifier

(i) Mybook (ii) Break (iii) _DK (iv) My_book (v) PaidIntrest (vi) s-num
(vii)percent (viii) 123 (ix) dit km (x) class

Ans:(i)valid(ii)Invalid (iii)Valid (iv)valid (v)valid (vi)invalid ('-' is not allowed
(vii)valid(viii)invalid(First Character must be alphabet(ix)invalid (no space is allowed) (x)invalid (class is a keyword)

- **Literals**- A fixed numeric or non-numeric value.
- **Variable**- A variable is like a container that stores values to be used in program.
- **String**- The text enclosed in quotes.
- **Comment**- Comments are non-executable statement begin with # sign.
- **Docstring**-Comments enclosed in triple quotes (single or double).
- **Operator** – performs some action on data
 - Arithmetic(+,-,*,/,%,**,//)
 - Relational/comparison (<,>, <=,>=, =, !=).
 - Assignment-(=,/=,+=,-=,*=,%=,**=,//=)
 - Logical – and, or
 - Membership – in, not in

- **Precedence of operators:**

() Parentheses	
** Exponentiation	
~ x Bitwise nor	
+x, -x Positive, Negative (Unary +, -)	
*(multiply), / (divide), //(floor division), %(modulus)	
+(add), -(subtract)	
& Bitwise and	
^ Bitwise XOR	
Bitwise OR	
<(less than), <=(less than or equal), >(greater than), >=(greater than or equal to), ==(equal), !=(not equal)	
is, is not	
not x Boolean NOT	
and Boolean AND	
or Boolean OR	
	Low

Data type:

There are following basic types of variable in as explained in last chapter:

Type	Description
bool	Stores either value True or False.
int	Stores whole number.
float	Stores numbers with fractional part.
Complex	Stores a number having real and imaginary part (a+bj)
String	Stores text enclosed in single or double quote
List	Stores list of comma separated values of any data type between square [] brackets.(mutable)
Tuple	Stores list of comma separated values of any data type between parentheses () (immutable)
Dictionary	Unordered set of comma-separated key:value pairs , within braces { }

All questions are of 1 mark.

Q.No.

Question

1. Which of the following is a valid identifier:
i. 9type ii. _type iii. Same-type iv. True
2. Which of the following is a relational operator:
i. > ii. // iii. or iv. **
3. Which of the following is a logical operator:
i. + ii. /= iii. and iv. in
4. Identify the membership operator from the following:
i. in ii. not in iii. both i & ii iv. Only i
5. Which one is a arithmetic operator:
i. not ii. ** iii. both i & ii iv. Only ii
6. What will be the correct output of the statement : >>>4//3.0
i. 1 ii. 1.0 iii. 1.3333 iv. None of the above
7. What will be the correct output of the statement : >>> 4+2**2*10
i. 18 ii. 80 iii. 44 iv. None of the above
8. Give the output of the following code:
>>> a,b=4,2
>>> a+b**2*10
i. 44 ii. 48 iii. 40 iv. 88
9. Give the output of the following code:
>>> a,b = 4,2.5
>>> a-b//2**2
i. 4.0 ii. 4 iii. 0 iv. None of the above
10. Give the output of the following code:
>>>a,b,c=1,2,3
>>> a//b**c+a-c*a
i. -2 ii. -2.0 iii. 2.0 iv. None of the above
11. If a=1,b=2 and c= 3 then which statement will give the output as : 2.0 from the following:
i. >>>a%b%c+1 ii. >>>a%b%c+1.0 iii. >>>a%b%c iv. a%b%c-1
12. Which statement will give the output as : True from the following :
i. >>>not -5 ii. >>>not 5 iii. >>>not 0 iv. >>>not(5-1)
13. Give the output of the following code:
>>>7*(8/(5//2))
i. 28 ii. 28.0 iii. 20 iv. 60
14. Give the output of the following code:
>>>import math
>>> math.ceil(1.03)+math.floor(1.03)
i. 3 ii. -3.0 iii. 3.0 iv. None of the above
15. What will be the output of the following code:
>>>import math
>>>math.fabs(-5.03)
i. 5.0 ii. 5.03 iii. -5.03 iv. None of the above
- Single line comments in python begin with..... symbol.
16. i. # ii. " iii. % iv. _
17. Which of the following are the fundamental building block of a python program.
i. Identifier ii. Constant iii. Punctuators iv. Tokens
18. The input() function always returns a value oftype.
i. Integer ii. float iii. string iv. Complex
19. function is used to determine the data type of a variable.
i. type() ii. id() iii. print() iv. str()
20. The smallest individual unit in a program is known as a.....
i. Token ii. keyword iii. punctuator iv. identifier

FLOW OF EXECUTION

#Decision making statements in python

Statement	Description
if statement	An if statement consists of a boolean expression followed by one or more statements.
if...else statement	An if statement can be followed by an optional else statement, which executes when the boolean expression is false.
if...elif...else	If the first boolean expression is false, the next is checked and so on. If one of the condition is true , the corresponding statement(s) executes, and the statement ends.
nested if...else statements	It allows to check for multiple test expression and execute different codes for more than two conditions.

#Iteration or Looping construct statements in python

Loop	Description
for loop: for<ctrl_var>in<sequence>: <statement in loop body> else: <statement>	It is used to iterate/repeat itself over a range of values or sequence one by one.
while loop: while<test_exp>: body of while else: body of else	The while loop repeatedly executes the set of statement till the defined condition is true.

21. Which of the following is not a decision making statement
 i. if..else statement ii. for statement iii. if-elif statement iv. if statement
22.loop is the best choice when the number of iterations are known.
 i. while ii. do-while iii. for iv. None of these

23. How many times will the following code be executed.

```
a=5
while a>0:
  print(a)
print("Bye")
```

- i. 5 times ii. Once iii. Infinite iv. None of these

24. What abandons the current iteration of the loop
 i. continue ii. stop iii. infinite iv. Break

25. Find the output of the following python program

```
for i in range(1,15,4):
  print(i, end=',')
```

- i. 1,20,3 ii. 2,3,4 iii. 1,5,10,14 iv. 1,5,9,13

26.loop is the best when the number of iterations are not known.
 i. while ii. do-while iii. for iv. None of these

27. In the nested looploop must be terminated before the outer loop.
 i. Outer ii. enclosing iii. inner iv. None of these

28.statement is an empty statement in python.
 i. pass ii. break iii. continue iv. if

29. How many times will the following code be executed

```
for i in range(1,15,5):
  print(i,end=',')
```

- i. 3 ii. 4 iii. 1 iv. infinite

30. Symbol used to end the if statement:

- i. Semicolon(;) ii. Hyphen(-) iii. Underscore(_) iv. colon(:)

String: Text enclosed inside the single or double quotes referred as String.

String Operations: String can be manipulated using operators like concatenation (+), repetition (*) and membership operator like in and not in.

Operation	Description
Concatenation	Str1 + Str2
Repetition	Str * x
Membership	in , not in
Comparison	str1 > str2
Slicing	String[range]

String Methods and Built-in functions:

Function	Description
len()	Returns the length of the string.
capitalize()	Converts the first letter of the string in uppercase
split()	Breaks up a string at the specified separator and returns a list of substrings.
replace()	It replaces all the occurrences of the old string with the new string.
find()	It is used to search the first occurrence of the substring in the given string.
index()	It also searches the first occurrence and returns the lowest index of the substring.
isalpha()	It checks for alphabets in an inputted string and returns True if string contains only letters.
isalnum()	It returns True if all the characters are alphanumeric.
isdigit()	It returns True if the string contains only digits.
title()	It returns the string with first letter of every word in the string in uppercase and rest in lowercase.
count()	It returns number of times substring str occurs in the given string.
lower()	It converts the string into lowercase
islower()	It returns True if all the letters in the string are in lowercase.
upper()	It converts the string into uppercase
isupper()	It returns True if all the letters in the string are in uppercase.
lstrip()	It returns the string after removing the space from the left of the string
rstrip()	It returns the string after removing the space from the right of the string
strip()	It returns the string after removing the space from the both side of the string
isspace()	It returns True if the string contains only whitespace characters, otherwise returns False.
istitle()	It returns True if the string is properly title-cased.
swapcase()	It converts uppercase letter to lowercase and vice versa of the given string.
ord()	It returns the ASCII/Unicode of the character.
chr()	It returns the character represented by the inputted Unicode /ASCII number

31. Which of the following is not a python legal string operation.
 i. 'abc'+ 'aba' ii. 'abc'*3 iii. 'abc'+3 iv. 'abc'.lower()
32. Which of the following is not a valid string operation.
 i. Slicing ii. concatenation iii. Repetition iv. floor
33. Which of the following is a mutable type.
 i. string ii. tuple iii. int iv. list
34. What will be the output of the following code
`str1="I love Python"`
`strlen=len(str1)+5`
`print(strlen)`
 i. 18 ii. 19 iii. 13 iv. 15
35. Which method removes all the leading whitespaces from the left of the string.
 i. split() ii. remove() iii. lstrip() iv.rstrip()
36. It returns True if the string contains only whitespace characters, otherwise returns False. i) isspace() ii. strip() iii. islower() iv. isupper()
37. It converts uppercase letter to lowercase and vice versa of the given string.
 i. lstrip() ii. swapcase() iii. istitle() iv. count()
38. What will be the output of the following code.
`Str='Hello World! Hello Hello'`
`Str.count('Hello',12,25)`
 i. 2 ii. 3 iii. 4 iv. 5
39. What will be the output of the following code.
`Str="123456"`
`print(Str.isdigit())`
 ii. True ii. False iii. None iv. Error
40. What will be the output of the following code.
`Str="python 38"`
`print(Str.isalnum())`
 iii. True ii. False iii. None iv. Error
41. What will be the output of the following code.
`Str="pyThOn"`
`print(Str.swapcase())`
 i. PYtHoN ii. pyThon iii. python iv. PYTHON
42. What will be the output of the following code.
`Str="Computers"`
`print(Str.rstrip("rs"))`
 i. Computer ii. Computers iii. Compute iv. compute
43. What will be the output of the following code.
`Str="This is Meera\` pen"`
`print(Str.isdigit())`
 i. 21 ii. 20 iii. 18 iv. 19
44. How many times is the word 'Python' printed in the following statement.
`s = "I love Python"`
`for ch in s[3:8]:`
`print('Python')`
 i. 11 times ii. 8 times iii. 3 times iv. 5 times

45. Which of the following is the correct syntax of string slicing:
 i. str_name[start:end] iii. str_name[start:step]
 ii. str_name[step:end] iv. str_name[step:start]
46. What will be the output of the following code?
 A="Virtual Reality"
 print(A.replace('Virtual','Augmented'))
 i. Virtual Augmented iii. Reality Augmented
 ii. Augmented Virtual iv. Augmented Reality
47. What will be the output of the following code?
 print("ComputerScience".split("er",2))
 i. ["Computer","Science"] iii. ["Comput","Science"]
 ii. ["Comput","erScience"] iv. ["Comput","er","Science"]
48. Following set of commands are executed in shell, what will be the output?
 >>>str="hello"
 >>>str[:2]
 i. he ii. lo iii. olleh iv. hello
49.function will always return tuple of 3 elements.
 i. index() ii. split() iii. partition() iv. strip()
50. What is the correct python code to display the last four characters of "Digital India"
 i. str[-4:] ii. str[4:] iii. str[*str] iv. str[/4:]

LIST: A list is a collection of comma-separated values (items) of same or different type within square brackets. List types can be of three types:

1. Empty list 2. Long List 3. Nested List
- 2.

Built-in Function (Manipulating Lists)

Function	Description
append()	It adds a single item to the end of the list.
extend()	It adds one list at the end of another list
insert()	It adds an element at a specified index.
reverse()	It reverses the order of the elements in a list.
index()	It returns the index of first matched item from the list.
len()	Returns the length of the list i.e. number of elements in a list
sort()	This function sorts the items of the list.
clear()	It removes all the elements from the list.
count()	It counts how many times an element has occurred in a list and returns it.
pop()	It removes the element from the end of the list or from the specified index and also returns it.

del Statement	It removes the specified element from the list
remove()	It is used when we know the element to be deleted, not the index of the element.
max()	Returns the element with the maximum value from the list.
min()	Returns the element with the minimum value from the list.

51. Given the list L=[11,22,33,44,55], write the output of print(L[: :-1]).
i. [1,2,3,4,5] ii. [22,33,44,55] iii. [55,44,33,22,11] iv. Error in code
52. Which of the following can add an element at any index in the list?
i. insert() ii. append() iii. extend() iv. all of these
53. Which of the following function will return a list containing all the words of the given string?
i. split() ii. index() iii. count() iv. list()
54. Which of the following statements are True.
a. [1,2,3,4]>[4,5,6]
b. [1,2,3,4]<[1,5,2,3]
c. [1,2,3,4]>[1,2,0,3]
d. [1,2,3,4]<[1,2,3,2]
i. a,b,d ii. a,c,d iii. a,b,c iv. Only d
55. If l1=[20,30] l2=[20,30] l3=['20','30'] l4=[20.0,30.0] then which of the following statements will not return 'False':
a. >>>l1==l2 b. >>>l4>l1 c. >>>l1>l2 d. >>> l2==l2
i. b, c ii. a,b,c iii. a,c,d iv. a,d
56. >>>l1=[10,20,30,40,50]
>>>l2=l1[1:4]
What will be the elements of list l2:
i. [10,30,50] ii. [20,30,40,50] iii. [10,20,30] iv. [20,30,40]
57. >>>l=['red','blue']
>>>l = l + 'yellow'
What will be the elements of list l:
i. ['red','blue','yellow'] ii. ['red','yellow'] iii. ['red','blue','yellow'] iv. Error
58. What will be the output of the following code:
>>>l=[1,2,3,4]
>>>m=[5,6,7,8]
>>>n=m+l
>>>print(n)
i. [1,2,3,5,6,7,8] ii. [1,2,3,4,5,6,7,8] iii. [1,2,3,4][5,6,7,8] iv. Error
59. What will be the output of the following code:
>>>l=[1,2,3,4]
>>>m=l*2
>>>n=m*2
>>>print(n)
i [1,2,3,4,1,2,3,4,1,2,3,4] ii. [1,2,3,4,1,2,3,4,1,2,3,4,1,2,3,4] iii. [1,2,3,4][4,5,6,7]
iv. [1,2,3,4]
60. Match the columns: if
>>>l=list('computer')

Column A

Column B

- 1. L[1:4] a. ['t','e','r']
- 2. L[3:] b. ['o','m','p']
- 3. L[-3:] c. ['c','o','m','p','u','t']
- 4. L[:-2] d. ['p','u','t','e','r']
- i. 1-b,2-d,3-a,4-c iii. 1-c,2-b,3-a,4-d
- ii. 1-b,2-d,3-c,4-a iv. 1-d,2-a,3-c,4-b

61. If a list is created as
 >>>l=[1,2,3,'a',['apple'],'green'],5,6,7,['red'],'orange'] then what will be the output of the following statements:
 >>>l[4][1]
 i. 'apple' iii. 'green'
 ii. 'red' iv. 'orange'
62. >>>l[8][0][2]
 i. 'd' iii. 'e'
 ii. 'r' iv. 'o'
63. >>>l[-1]
 i. ['apple'],'green'] iii. ['red'],'orange']
 ii. ['red'] iv. ['orange']
64. >>>len(l)
 i. 10 iii. 9
 ii. 8 iv. 11
65. What will be the output of the following code:
 >>>l1=[1,2,3]
 >>>l1.append([5,6])
 >>>l1
 i. [1,2,3,5,6] ii. [1,2,3,[5,6]] iii. [[5,6]] iv. [1,2,3,[5,6]]
66. What will be the output of the following code:
 >>>l1=[1,2,3]
 >>>l2=[5,6]
 >>>l1.extend(l2)
 >>>l1
 ii. [5,6,1,2,3] ii. [1,2,3,5,6] iii. [1,3,5] iv. [1,2,3,6]
67. What will be the output of the following code:
 >>>l1=[1,2,3]
 >>>l1.insert(2,25)
 >>>l1
 iii. [1,2,3,25] ii. [1,25,2,3] iii. [1,2,25,3] iv. [25,1,2,3,6]
68. >>>l1=[10,20,30,40,50,60,10,20,10]
 >>>l1.count('10')
 i. 3 ii. 0 iii. 2 iv. 9
69. Which operators can be used with list?
 i. in ii. not in iii. both (i)&(ii) iv. Arithmetic operator only
70. Which of the following function will return the first occurrence of the specified element in a list.
 i. sort() ii. value() iii. index() iv. sorted()

Tuples and Dictionary: Tuple is a data structure in python, A tuple consists of multiple values in a single variable separated by commas. Tuples are enclosed within parentheses (). Tuple is an immutable data type.

Common Tuple Operations:

Operation	Description
Concatenation	Tuple1 + Tuple2
Repetition	Tuple * x
Index	Tuple.index(ele)
Count	Tuple.count(ele)
Slicing	Tuple[range]
Membership	in and not in

Tuple Functions:

Function	Description
del statement	It is used to delete the tuple.
index()	It returns the index of first matched item from the tuple.
len()	Returns the length of the tuple i.e. number of elements in a tuple
count()	It counts how many times an element has occurred in a tuple and returns it.
any ()	It returns True if a tuple is having at least one item otherwise False.
sorted()	It is used to sort the elements of a tuple. It returns a list after sorting.
sum()	It returns sum of the elements of the tuple.
max()	Returns the element with the maximum value from the tuple.
min()	Returns the element with the minimum value from the tuple.

Dictionary: Python Dictionaries are a collection of some key-value pairs .Dictionaries are **mutable** unordered collections with elements in the form of a key:value pairs that associate keys to values. Dictionaries are enclosed within braces { }

Function	Description
items()	It returns the content of dictionary as a list of tuples having key-value pairs.
keys()	It returns a list of the key values in a dictionary

values()	It returns a list of values from key-value pairs in a dictionary
get()	It returns the value for the given key ,if key is not available then it returns None
copy()	It creates the copy of the dictionary.
len()	Returns the length of the Dictionary i.e. number of key:value pairs in a Dictionary
fromkeys()	It is used to create dictionary from a collection of keys(tuple/list)
clear()	It removes all the elements from the Dictionary.
sorted()	It sorts the elements of a dictionary by its key or values.
popitem()	It removes the last item from dictionary and also returns the deleted item.
max()	Returns the key having maximum value in the Dictionary.
min()	Returns the key having minimum value in the Dictionary.

71. Which of the statement(s) is/are correct.
- Python dictionary is an ordered collection of items.
 - Python dictionary is a mapping of unique keys to values
 - Dictionary is mutable.
 - All of these.
72.function is used to convert a sequence data type into tuple.
- List()
 - tuple()
 - TUPLE
 - tup()
73. It tup=(20,30,40,50), which of the following is incorrect
- print(tup[3])
 - tup[2]=55
 - print(max(tup))
 - print(len(tup))
74. Consider two tuples given below:
- ```
>>>tup1=(1,2,4,3)
>>>tup2=(1,2,3,4)
```
- What will the following statement print(tup1<tup2)
- True
  - False
  - Error
  - None of these
75. Which function returns the number of elements in the tuple
- len()
  - max()
  - min()
  - count()



76. Which function is used to return a value for the given key.  
 i. len() ii. get() iii. keys() iv. None of these
77. Keys of the dictionary must be  
 i. similar ii. unique iii. can be similar or unique iv. All of these
78. Which of the following is correct to insert a single element in a tuple .  
 i. T=4 ii. T=(4) iii. T(4,) iv. T=[4,]
79. Which of the following will delete key-value pair for key='red' form a dictionary D1  
 i. Delete D1("red") ii. del. D1("red") iii. del D1["red"] iv. del D1
80. Which function is used to remove all items form a particular dictionary.  
 i. clear() ii. pop() iii. delete iv. rem()
81. In dictionary the elements are accessed through  
 i. key ii. value iii. index iv. None of these
82. Which function will return key-value pairs of the dictionary  
 i. key() ii. values() iii. items() iv. get()
83. Elements in a tuple can be of .....type.  
 i. Dissimilar ii. Similar iii. both i & ii iv. None of these
84. To create a dictionary , key-value pairs are separated by.....  
 i. (;) ii. (,) iii. (:) iv. (/)
85. Which of the following statements are not correct:  
 a. An element in a dictionary is a combination of key-value pair  
 b. A tuple is a mutable data type  
 c. We can repeat a key in dictionary  
 d. clear() function is used to deleted the dictionary.  
 i. a,b,c ii. b,c,d iii. b,c,a iv. a,b,c,d
86. Which of the following statements are correct:  
 a. Lists can be used as keys in a dictionary  
 b. A tuple cannot store list as an element  
 c. We can use extend() function with tuple.  
 d. We cannot delete a dictionary once created.  
 i. a,b,c ii. b,c,d iii. b,c,a iv. None of these
87. Like lists, dictionaries are.....which mean they can be changed.  
 i. Mutable ii. immutable iii. variable iv. None of these
88. To create an empty dictionary , we use  
 i. d=[ ] ii. d=( ) iii. d = { } iv. d= <>
89. To create dictionary with no items , we use  
 ii. Dict ii. dict() iii. d = [ ] iv. None of these
90. What will be the output  

```
>>>d1={'rohit':56,'Raina':99}
>>>print("Raina" in d1)
```

 i. True ii. False iii. No output iv. Error
91. Rahul has created the a tuple containing some numbers as  

```
>>>t=(10,20,30,40)
```

 now he wants to do the following things help him

1. He want to add a new element 60 in the tuple, which statement he should use out of the given four.

- i. `>>>t+(60)`  
 ii. `>>>t + 60`  
 iii. `>>>t + (60,)`  
 iv. `>>>t + ('60')`
- 92 Rahul wants to delete all the elements from the tuple, which statement he should use  
 i. `>>>del t`  
 ii. `>>>t.clear()`  
 iii. `>>>t.remove()`  
 iv. `>>>None of these`
- 93 Rahul wants to display the last element of the tuple, which statement he should use  
 i. `>>> t.display()`  
 ii. `>>>t.pop()`  
 iii. `>>>t[-1]`  
 iv. `>>>t.last()`
- 94 Rahul wants to add a new tuple t1 to the tuple t, which statement he should use  
 i. `>>>t+t1`  
 ii. `>>>t.add(t1)`  
 iii. `>>>t*t1`  
 iv. None of these
- 95 Rahul has issued a statement after that the tuple t is replace with empty tuple, identify the statement he had issued out of the following:  
 i. `>>> del t`  
 ii. `>>>t= tuple()`  
 iii. `>>>t=Tuple()`  
 iv. `>>>delete t`
- 96 Rahul wants to count that how many times the number 10 has come:  
 i. `>>>t.count(10)`  
 ii. `>>>t[10]`  
 iii. `>>>count.t(10)`  
 iv. None of these
- 97 Rahul want to know that how many elements are there in the tuple t, which statement he should use out of the given four  
 i. `>>>t.count()`  
 ii. `>>>len(t)`  
 iii. `>>>count(t)`  
 iv. `>>>t.sum()`
- 98 `>>>t=(1,2,3,4)`  
 Write the statement should be used to print the first three elements 3 times  
 i. `>>>print(t*3)`  
 ii. `>>>t*3`  
 iii. `>>>t[:3]*3`  
 iv. `>>>t+t`
- 99 Match the output with the statement given in column A with Column B
- |                                                      |                                                    |
|------------------------------------------------------|----------------------------------------------------|
| 1. <code>&gt;&gt;&gt;tuple([10,20,30])</code>        | a. <code>&gt;&gt;&gt; (10,20,30)</code>            |
| 2. <code>&gt;&gt;&gt;("Tea",)* 3</code>              | b. <code>&gt;&gt;&gt; 2</code>                     |
| 3. <code>&gt;&gt;&gt;tuple("Item")</code>            | c. <code>&gt;&gt;&gt; ('Tea', 'Tea', 'Tea')</code> |
| 4. <code>&gt;&gt;&gt;print(len(tuple([1,2])))</code> | d. <code>&gt;&gt;&gt; ('T', 't', 'e', 'm')</code>  |
- i. 1-b,2-c,3-d,4-a  
 ii. 1-a,2-c,3-d,4-b  
 iii. 1-c,2-d,3-a,4-a  
 iv. 1-d,2-a,3-b,4-c

100 Write the output of the following code:

```
>>>d={'name':'rohan','dob':'2002-03-11','Marks':'98'}
>>>d1={'name':'raj')
>>>d1=d.copy()
>>>print("d1 :",d1)
i. d1 : {'name': 'rohan', 'dob': '2002-03-11', 'Marks': '98'}
ii. d1 = {'name': 'rohan', 'dob': '2002-03-11', 'Marks': '98'}
iii. {'name': 'rohan', 'dob': '2002-03-11', 'Marks': '98'}
iv. (d1 : {'name': 'rohan', 'dob': '2002-03-11', 'Marks': '98'})
```

## WORKING WITH FUNCTIONS

**FUNCTION:** A function is a subprogram that acts on data and often returns a value. Python functions can belong to one of the following three categories:

1. Built-in Function
2. Functions defined in modules
3. User defined functions

**Arguments and Parameters:** The values being passed through a function call statement are called argument (or actual parameter or actual argument).

The values received in the function definition/header are called parameter (or formal parameter or formal argument)

**Note:** A function header cannot have expressions. It can have just names or identifiers. Python supports three types of arguments/parameters:

1. **Positional Argument (Required Arguments):** The way of parameter and argument specification is called Positional or Required arguments or Mandatory arguments
2. **Default Arguments:** A parameter having default value in the function header is known as a default parameter.
3. **Keyword (or named) Arguments:** Keyword arguments are the named arguments with assigned values being passed in the function call statement.

### **Rules for combining all three types of statements:**

- i. An argument list must first contain positional (required) arguments followed by any keyword argument.
- ii. Keyword arguments should be taken from the required arguments preferably.
- iii. We cannot specify a value for an argument more than once.

### **There can be broadly two types of functions in Python:**

1. Functions returning some value ( Non – void function)
2. Functions not returning any value (void function)

**Scope of variable:** Part(s) of program within which a name is legal and accessible, is called scope of the variable (name).

### **There are two kinds of scopes in Python:**

1. **Global Scope:** A name declared outside all the function body is called Global variable and it has Global Scope.
2. **Local Scope:** A name declared within a function is called Local variable and it has Local scope.

**Lifetime:** The time for which a variable or name remains in memory is called Lifetime of variable.

## Built-in Functions

| Function                            | Description                                                                                                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| eval()                              | It is used to evaluate the value of a string and returns numeric value                                                   |
| min() and max()                     | Both can take two or more arguments and returns the smallest and largest value respectively.                             |
| abs()                               | It returns the absolute value of a single number.                                                                        |
| type()                              | It is used to determine the type of variable.                                                                            |
| round()                             | It returns the result up to a specified number of digit .                                                                |
| len()                               | Returns the length of an object.                                                                                         |
| range()                             | It is used to define a series of numbers.                                                                                |
| <b>Functions form math module</b>   |                                                                                                                          |
| ceil(x)                             | It returns the smallest integer that is greater than or equal to x.                                                      |
| floor(x)                            | It returns the largest integer that is less than or equal to x.                                                          |
| pow(x,y)                            | It returns the value of $x^y$ , where x and y are numeric expressions, and returns the output in floating point number.  |
| sqrt(x)                             | Returns the square root of x.                                                                                            |
| <b>Functions from random module</b> |                                                                                                                          |
| random()                            | It generates a random number from 0 to 1.                                                                                |
| randrange()                         | It generates an integer between its lower and upper argument. By default the lower argument is 0 and upper argument is 1 |
| choice()                            | It is used for making a random selection from a sequence like list, tuple or string.                                     |
| shuffle()                           | It is used to shuffle or swap the contents of a list.                                                                    |

- 101 A function in python begins with which keyword?  
i. void ii. return iii. int iv. Def
- 102 Name the statement that sends back a value from a function  
i. print ii. input iii. return iv. None
- 103 What is the output of the program given below:  
x=50  
def func(x):  
    x=2  
func(x)  
print('x is now',x)

- i. x is now 50      iii. x is now 2
- ii. x is now 100    iv. Error

104 What is the output of the program given below:

```
import random
x = random.random()
y= random.randint(0,4)
print(int(x),":", y+int(x))
```

- i. 0: 0      iii. 2 : 4
- ii. 1: 6     iv. 0 : 5

105 def cal(a,b,c):

```
 return a*3,b*3,c*3
val=cal(10,12,14)
print(type(val))
print(val)
```

- i. [30, 24, 28]      iii. [30,36,42]
- ii. [10, 20, 30]    iv. [10,12,14]

106 What is the output of the expression:round(4.576)

- i. 4.5    ii. 5      iii. 4      iv. 4.6

107 What is the output of the function shown below?

```
import math
abs(math.sqrt(25))
```

- i. Error    ii. -5      iii. 5      iv. 5.0

108 What is the output of the functions shown below?>>>min(max(False,-3,-4), 2,7)

- i. 2      ii. False    iii. -3    iv. -4

109 What are the outcomes of the function shown below?

```
>>>x=3
>>>eval('x**2')
```

- i. Error    ii. 1      iii. 9      iv. 6

110 Which of the following functions does not throw an error?

- i. ord()    ii. ord(' ')    iii. ord("")    iv. ord("")

111 What is the output of below program?

```
def say(message, times = 1):
 print(message * times , end = ' ')
say('Hello and')
say('World', 5)
```

- i. Hello and WorldWorldWorldWorldWorld
- ii. Hello and World 5
- iii. Hello and World,World,World,World,World
- iv. Hello and HelloHelloHelloHelloHello

112 What is a variable defined inside a function referred to as?

- i. A global variable      ii. A volatile variable
- iii. A local variable      iv. An automatic variable

113 How many keyword arguments can be passed to a function in a single function call?

- i. zero    ii. one      iii. zero or more    iv. one or more

- 114 How are required arguments specified in the function heading?  
 i. identifier followed by an equal to sign and the default value  
 ii. identifier followed by the default value within backticks (“ ”)  
 iii. identifier followed by the default value within square brackets ([ ]) )  
 iv. identifier
- 115 What is returned by  
`>>> math.ceil(3.4)?`  
 i. 3    ii. 4    iii. 4.0    iv. 3.0
- 116 What is the value returned by  
`>>> math.floor(3.4)`  
 i. 3    ii. 4    iii. 4.0    iv. 3.0
- 117 What is returned by  
`>>> math.ceil(-3.4)?`  
 ii. 3    ii. 4    iii. 4.0    iv. -3
- 118 What is the value returned by  
`>>> math.floor(-3.4)`  
 ii. 3    ii. -4    iii. 4.0    iv. 3.0
- 119 What is displayed on executing `print(math.fabs(-3.4))`?  
 i. -3.4    ii. 3.4    iii. 3    iv. -3
- 120 What is output of `print(math.pow(3, 2))`?  
 i. 9    ii. 9.0    iii. None    iv. None of these
- 121 What is the value of x if `x = math.sqrt(4)`?  
 i. 2    ii. 2.0    iii. (2, -2)    iv. (2.0, -2.0)
- 122 To include the use of functions which are present in the random library, we must use the option:  
 i. `import random`    iii. `random.h`  
 ii. `import.random`    iv. `random.random`
- 123 What is the output of the code shown below?  
`import random`  
`random.choice(2,3,4)`  
 i. An integer other than 2, 3 and 4    ii. Either 2, 3 or 4  
 iii. Error    iv. 3 only
- 124 What is the output of the function shown below (random module has already been imported)?  
`>>>random.choice('sun')`  
 i. sun    ii. u    iii. either s, u or n    iv. Error
- 125 What is the output of the function shown below if the random module has already been imported?  
`>>>import random`  
`>>>random.randint(3.5,7)`  
 i. Error  
 ii. Any integer between 3.5 and 7, including 7  
 iii. Any integer between 3.5 and 7, excluding 7  
 iv. The integer closest to the mean of 3.5 and 7
- 126 Which type of elements are accepted by `random.shuffle()`?  
 i. strings    ii. lists    iii. tuples    iv. integers
- 127 .....keyword is used to define a function.  
 i. Void    ii. func    iii. def    iv. None
- 128 Which of the following statements are True out of the given below:

1. More than one value(s) can be returned by a function
  2. The variable declared inside a function is a Global variable.
  3. Once the function is defined , it may be called only once
  4. A function is used by invoking it
- i. 1 & 2    ii. 1 & 4    iii. 2 & 3    iv. 2 & 4

129 Match the columns:

- | A                   | B                                  |
|---------------------|------------------------------------|
| 1. max()            | a. will compute x**y               |
| 2. sqrt(x)          | b. will select a option randomly   |
| 3. choice()         | c. will return the largest value   |
| 4. pow(x,y)         | d. will compute (x) <sup>1/2</sup> |
| i. 1-a,2-b,3-c,4-d  | iii. 1-c,2-d,3-b,4-a               |
| ii. 1-d,2-a,3-c,4-b | iv. 1-b,2-c,3-d,4-a                |

130 What will be the output of the following code:

```
A=1
```

```
def f():
```

```
 A=10
```

```
print(A)
```

- i. 1    ii. 10    iii. Error    iv. None

131 >>>def Interest(p,c,t=2,r=0.09):

```
 return p*t*r
```

Considering the above defined function which of following function call are legal.

1. Interest(p=1000,c=5)
2. Interest(r=0.05,5000,3)
3. Interest(500,t=2,r=0.05)
4. Interest(c=4,r=0.12,p=5000)

- i. 1, 2 and 4    ii. 2 & 3    iii. 1 & 4    iv. 3 & 4

133 Consider the program given in question no.132 and answer the question from 133 to 138 given below:

What will come in place of statement 2:

- i. upper()    ii. isupper    iii. isupper()    iv. is\_upper()

134 What will come in place of statement 3:

- i. [digits]    ii. ["digits"]    iii. d["digits"]    iv. d["Digits"]

135 What will come in place of statement 4:

- i. ["Special\_chr"]    iii. "Special\_chr"  
 ii. D["Special\_chr"]    iv. d("Special\_chr")

136 What will come in place of statement 5:

- i. s    ii. S    iii. d["s"]    iv. d[s]

137 What will come in place of statement 6:

- i. d["Upper\_case"]    iii. ["Upper\_case"]  
 ii. d["s"]    iv. d[s]

138 What will come in place of statement 7:

- i. d["Digits"]    iii. d["digits"]  
 ii. d["Digit"]    iv. d[s]

139 The built-in function sin() belongs to which module:

- i. random    ii. pandas    iii. math    iv. numpy

140 .....function returns the smallest integer greater than the given floating point number.

- i. floor()    ii. ceil()    iii. sqrt()    iv. CEIL()



- 141 .....function will return the largest integer less than the given floating point number.  
 i. floor() ii. ceil() iii. sqrt() iv CEIL()
- 142 .....function returns the length of the object being passed.  
 i. Length() ii. Len() iii. len() iv. count()
- 143 .....function returns the absolute value.  
 i. Abs() ii. abs() iii. absolute() iv. None of these
- 144 The range(x) function will generate the series of numbers from :  
 i. Min to max ii. 0 to x-1 iii. 0 to x iv. x
- 145 ..... function can identify the whitespace in a given string.  
 i. Space() ii. isspace() iii. Isspace() iv. is\_space()
- 146 Consider the statement given below and answer the question:  
 >>>S='My name is Ravindra'  
 Which statement will print "True" out of the given :  
 i. print(S.isspace())  
 ii. print (s.isspace())  
 iii. print(S[2].isspace)  
 iv. print(S[2].isspace())
- 147 A variable declared outside all the functions in a python program, then mention the statements which are **True** in the context of the variable.  
 1. This variable will have global scope.  
 2. This variable will not be accessible from anywhere in the prog.  
 3. This variable will have a large lifetime than local variable.  
 4. This variable will be referred as Local variable.  
 i. Only 1&2 ii. Only 1 iii. Only 1&3 iv. Only 3

## Answers:

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1   | ii  | 2   | i   | 3   | iii | 4   | iii | 5   | iv  | 6   | ii  | 7   | iii |
| 8   | i   | 9   | i   | 10  | i   | 11  | ii  | 12  | iii | 13  | ii  | 14  | i   |
| 15  | iii | 16  | i   | 17  | i   | 18  | iii | 19  | i   | 20  | i   | 21  | ii  |
| 22  | iii | 23  | iii | 24  | iv  | 25  | iv  | 26  | i   | 27  | iii | 28  | i   |
| 29  | i   | 30  | iv  | 31  | iii | 32  | iv  | 33  | iv  | 34  | i   | 35  | iii |
| 36  | i   | 37  | ii  | 38  | i   | 39  | i   | 40  | ii  | 41  | i   | 42  | iii |
| 43  | iv  | 44  | iv  | 45  | i   | 46  | iv  | 47  | iii | 48  | i   | 49  | iii |
| 50  | i   | 51  | iii | 52  | i   | 53  | i   | 54  | iii | 55  | iv  | 56  | iv  |
| 57  | iv  | 58  | ii  | 59  | ii  | 60  | i   | 61  | iii | 62  | i   | 63  | iii |
| 64  | iii | 65  | iv  | 66  | ii  | 67  | iii | 68  | ii  | 69  | iii | 70  | iii |
| 71  | iv  | 72  | ii  | 73  | ii  | 74  | ii  | 75  | i   | 76  | ii  | 77  | ii  |
| 78  | iii | 79  | iii | 80  | i   | 81  | i   | 82  | iii | 83  | iii | 84  | iii |
| 85  | ii  | 86  | iv  | 87  | i   | 88  | iii | 89  | ii  | 90  | i   | 91  | iii |
| 92  | i   | 93  | iii | 94  | i   | 95  | ii  | 96  | i   | 97  | ii  | 98  | iii |
| 99  | ii  | 100 | i   | 101 | iv  | 102 | iii | 103 | i   | 104 | i   | 105 | iii |
| 106 | ii  | 107 | iv  | 108 | ii  | 109 | iii | 110 | ii  | 111 | i   | 112 | iii |
| 113 | iii | 114 | i   | 115 | ii  | 116 | i   | 117 | iv  | 118 | ii  | 119 | ii  |

|     |     |     |     |     |     |     |    |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|
| 120 | ii  | 121 | ii  | 122 | i   | 123 | ii | 124 | iii | 125 | ii  | 126 | ii  |
| 127 | iii | 128 | ii  | 129 | iii | 130 | i  | 131 | iii | 132 | iv  | 133 | iii |
| 134 | iv  | 135 | iii | 136 | i   | 137 | i  | 138 | i   | 139 | iii | 140 | ii  |
| 141 | i   | 142 | iii | 143 | ii  | 144 | ii | 145 | ii  | 146 | iv  | 147 | iii |

## Data File Handling

### Key Points of Data File Handling

**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

There are 3 types of functions to read data from a file. –read( ), readline( ), readlines( )

**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.

**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.

### Compare text files, binary files and csv files and write pros and cons of each of them.

|   | Text Files                                                                      | Binary Files                                                                           | CSV Files                                                                     |
|---|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1 | It is capable to handle textual data.                                           | It is capable to handle large file.                                                    | It is very common format and platform independent.                            |
| 2 | It consists of series of lines of a set of letters, numbers or symbols (String) | It consists of data with a specific pattern without any delimiter.                     | It consists of plain text with a list of data with a delimiter.               |
| 3 | Any text editors like notepad can be used to read them.                         | No specific programs can be used to read them, python provides functions to read data. | It can be read using text editors like notepads and spreadsheet software.     |
| 4 | Every line ends with EOL.                                                       | There is no specific EOL character.                                                    | It terminates a line automatically when the delimiter is not used after data. |

### MCQs on Data File Handling

- 1 Every file has its own identity associated with it. Which is known as –
- a. icon
  - b. extension
  - c. format
  - d. file type
- 2 Which of the following is not a known file type?
- a. .pdf
  - b. .jpg
  - c. .mp3
  - d. .txp
3. In `f=open("data.txt", "r")`, `r` refers to \_\_\_\_\_.
- a. File handle
  - b. File object
  - c. File Mode
  - d Buffer
4. EOL stands for
- a. End Of Line
  - b. End Of List
  - c. End of Lines
  - d. End Of Location
5. Which of the following file types allows to store large data files in the computer memory?
- a. Text Files
  - b. Binary Files
  - c. CSV Files
  - d. None of these
6. Which of the following file types can be opened with notepad as well as ms excel?
- a. Text Files
  - b. Binary Files
  - c. CSV Files
  - d. None of these
7. Which of the following is nor a proper file access mode?
- a. close
  - b. read
  - c. write
  - d. append

8. To read 4th line from text file, which of the following statement is true?

- a. `dt = f.readlines();print(dt[3])`
- b. `dt=f.read(4) ;print(dt[3])`
- c. `dt=f.readline(4);print(dt[3])`
- d. All of these

9 Which of the following function flushes the files implicitly?

- a. `flush()`
- b. `close()`
- c. `open()`
- d. `fflush()`

10. Which of the following functions flushes the data before closing the file?

- a. `flush()`**
- b. `close()`
- c. `open()`
- d. `fflush()`

11. In `F=open("MyFile.txt")` , name of file object is

- a. `open`
- b. `MyFile.txt`
- c. `F`
- d. `F=open()`

12. Default EOL character in Python.

- a. `'\n'`
- b. `'\r'`
- c. `' '`
- d. `'\t'`

13. Which of the following is not a file extension for text files?

- a. `.txt`
- b. `.ini`
- c. `.rtf`
- d. `.DAT`

14. What is the first thing to do before performing any functions on a text file?

- a. Import modules
- b. Open file
- c. Read file
- d. Print the name of the file

15. What is a file object?
- It serves as a link to the file.
  - It is a file present in a computer.
  - A keyword
  - A module in python
16. Which is not a correct file mode for text files?
- a
  - ar
  - a+
  - r+
17. What does the prefix r in front of a string do?
- It makes the string a raw string
  - It opens the file in read mode
  - It converts the file into text file
  - It creates the file if it doesn't exist
18. A file object is also known as
- File handle
  - File copy
  - File directory
  - File link
19. How to open a text file in read mode only?
- r
  - r+
  - rb+
  - rw+
20. How to open a text file in write and read mode?
- r+
  - a+
  - wr
  - wb
21. Syntax for closing a file:
- closefile(<file object>)
  - <fileobject>.close()
  - <filename>.closer()
  - closefile.<fileobject>
22. Which method can not be used to read from files?
- read()
  - readlines()
  - readlines(<filename>)
  - readline()
23. What does strip() function do?
- Removes the trailing or leading spaces, if any.
  - Deletes the file
  - Remove the file object
  - Removes all the spaces between words

24. `readlines()` gives the output as

- a. List
- b. Tuple
- c. String
- d. Sets

25. When reading a file using the file object, what method is best for reading the entire file into a single string?

- a. `readline()`
- b. `read_file_to_str()`
- c. `read()`
- d. `readlines()`

26. Which file can open in any text editor and is in human readable form?

- a. Binary files
- b. Text files
- c. Data files
- d. Video files

27. Which function breaks the link of file-object and the file on the disk?

- a. `close()`
- b. `open()`
- c. `tell()`
- d. `readline()`

28. Which function reads the leading and trailing spaces along with trailing newline character (`'\n'`) also while reading the line?

- a. `readlines()`
- b. `readline()`
- c. `read()`
- d. `flush()`

29. Which mode is used to retain its previous data and allowing to add new data?

- a. write mode
- b. read mode
- c. open mode
- d. append mode

30. Which function forces the writing of data on disc still pending in output buffer?

- a. `seek()`
- b. `tell()`
- c. `flush()`
- d. `write()`

31. Syntax for `flush()` function is:

- a. `<fileObject>(flush())`
- b. `flush().<fileobject>`
- c. `<fileObject>.flush()`
- d. `flush().<file-object>`

32. Which function returns the entire file content in a list where each line is one item of the list?

- a. `readlines()`

- b. readline( )
- c. output( )
- d. Input( )

33. Which function is used to remove the given character from trailing end i.e. right end?

- a. strip( )
- b. remove( )
- c. Istrip( )
- d.rstrip( )

34. Sometimes the last lap of data remains in buffer and is not pushed onto disk until a \_\_\_\_\_ operation is performed.

- a. dump( )
- b. close( )
- c. load( )
- d. open( )

35. The position of a file-pointer is governed by the\_\_\_\_\_.

- a. File mode
- b. append mode
- c. write mode
- d. open mode

36. In which mode the file must exist already, otherwise python raises an error? a. read mode

- b. write mode
- c. binary mode
- d. None of these

37. What is the prefix r stands for in file path?

- a. raw string
- b. read
- c. write
- d. append

38. In which mode\_\_\_\_\_ if the file does not exist, then the file is created?

- a. read write mode
- b. read mode
- c. write mode
- d. All of these

39. Which option is correct about this program?

```
f=open("ss.txt","wb")
print("Name of the file:",f.name)
f.flush()
f.close()
```

- a. Compilation error
- b. Runtime error
- c. No output
- d. Flushes the file when closing them

40. What is the output of the following?

```
import sys
sys.stdout.write('Hello\n')
```

sys.stdout.write('Python\n')

- a. error
- b. Runtime error
- c. Hello Python
- d. Hello  
Python

41. Which function is used to read all the characters in text files?

- a. read( )
- b. readcharacters( )
- c. readall( )
- d. readchar( )

42. Which function is used to read all the lines?

- a. read( )
- b. readall( )
- c. readlines( )
- d. readline( )

43. In which format does the readlines( ) function give the output?

- a. Integer type
- b. list type
- c. string type
- d. tuple type

44. In which format does the read( ) function give the output?

- a. Integer type
- b. string type
- c. list type
- d. tuple type

45. Which function is used to write a list of strings in a file?

- a. writestatement()
- b. writelines()
- c. writefulline()
- d. writeline()

46. Which function is used to write all the characters?

- a. writechar()
- b. writecharacters()
- c. write()
- d. writeall()

47. What is the correct syntax of open() function?

- a. file=open(file\_name[,access\_mode][,buffering])
- b. fileobject=open(file\_name[,access\_model][,buffering])
- c. fileobject=filename.open()
- d. none of the mentioned

48. In file handling, what does means “r”, “a”?

- a. append, read



- b. read, append
- c. read, add
- d. None of the mentioned

49. The default file open mode is....

- a. w
- b. r+
- c. w+
- d. r

50. What is the difference between r+ and w+ modes?

- a. In r+ mode, file length truncates to zero.
- b. In w+ mode, file length truncates to zero either file exists or not.
- c. No difference
- d. Depends on the operating system

51. A file maintains a \_\_\_\_\_ which tells the current position in the file where writing or reading will take place.

- a. line
- b. file pointer
- c. list
- d. order

52. Which of the following statements is true regarding the opening modes of a file? a. While opening a file for reading, if the file does not exist, an error occurs. b. While opening a file for writing, if the file does not exist, an error occurs. c. While opening a file for reading, if the file does not exist, a new file is created. d. None of the above.

53. To force python to write the contents of file buffer on to storage file,.....method may be used.

- a. buffer()
- b. flush()
- c. close()
- d. write()

54. Which of the following statements are true?

- a) When you open a file for reading, if the file does not exist, an error occurs.
- b) When you open a file for writing, if the file does not exist, a new file is created.
- c) When you open a file for writing, if the file exists, the existing file content is overwritten with the new content.
- d) All of the these

55. To read the next line of the file from a file object f1, we use:

- a) f1.read(2)
- b) f1.read()
- c) f1.readline()
- d) f1.readlines()

**ANSWER KEY**

|             |             |             |             |             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>1.B</b>  | <b>2.D</b>  | <b>3.C</b>  | <b>4.A</b>  | <b>5.B</b>  | <b>6.C</b>  | <b>7.A</b>  | <b>8.A</b>  | <b>9B</b>   | <b>10.A</b> |
| <b>11.C</b> | <b>12.A</b> | <b>13.D</b> | <b>14.B</b> | <b>15.A</b> | <b>16.B</b> | <b>17.A</b> | <b>18.A</b> | <b>19.A</b> | <b>20.A</b> |
| <b>21.B</b> | <b>22.C</b> | <b>23.A</b> | <b>24.A</b> | <b>25.C</b> | <b>26.B</b> | <b>27.A</b> | <b>28.B</b> | <b>29.D</b> | <b>30.C</b> |
| <b>31.C</b> | <b>32.A</b> | <b>33.D</b> | <b>34.B</b> | <b>35.A</b> | <b>36.A</b> | <b>37.A</b> | <b>38.C</b> | <b>39.D</b> | <b>40.D</b> |
| <b>41.A</b> | <b>42.C</b> | <b>43B</b>  | <b>44.B</b> | <b>45.B</b> | <b>46.C</b> | <b>47.B</b> | <b>48.B</b> | <b>49.D</b> | <b>50.B</b> |
| <b>51.B</b> | <b>52.A</b> | <b>53.B</b> | <b>54.D</b> | <b>55.C</b> |             |             |             |             |             |

## BINARY FILES MCQs

**Q1. Which of the following commands is used to open a file “c:\temp.txt” in append-mode?**

- a. outfile - open(“c:/temp.txt”, “a”)
- b. outfile - open(“c:\\temp.txt”, “rw”)
- c. outfile - open(“c:\temp.txt”, “w+”)
- d. outfile - open(“c:\\temp.txt”, “r+”)

**Q2 What are the binary files used for?**

- a. It is used to store data in the form of bytes.
- b. To store data
- c. To look folder good
- d. None of these

**Q3. What is the function of `rb` mode in binary?**

- a. Both reading and writing operations can take place.
- b. File is in only write mode.
- c. File is created if it does not exist.
- d. File must exist otherwise error will be shown.

**Q4. What is the description of `r+b` in binary mode?**

- a. read and write
- b. write and read
- c. read only
- d. none of these

**5. What is binary file mode for append?**

- a. `rb`
- b. `wb`
- c. `ab`
- d. None of these

**Q6. What is the binary file mode associated with “ file must exist, otherwise error will be raised and reading and writing can take place”.**

- a. read and write
- b. write and read
- c. read only
- d. append

**Q7. What is the process of converting a byte stream back to the original structure called?**

- a. append
- b. txt.file
- c. Unpickling
- d. None of these.

**Q8. Which module is used to store data into python objects with their structure?**

- a. pickle
- b. binary files
- c. unpickle
- d. None of these

**Q9. What is pickle.dump()?**

- a. dump() function is used to store the object data to the file.
- b. It is used to read
- c. append
- d. None of these

**Q10. Which one of the following is the correct statement?**

- a. pickle import
- b. import - pickle
- c. import pickle
- d. None of the above

**Q11. Which is the valid syntax to write an object onto a binary file opened in the write mode?**

- a. pickle.dump(<object to be written>, <file handle of open file>)
- b. pickle.dump(<file handle of open file>, <object to be written>)
- c. dump.pickle(<object>, <file handle>)
- d. None of the above

**Q12. Which method is used for object serialization?**

- a. Pickling
- b. Unpickling
- c. None of the above
- d. All of the above

**Q13. Which method of pickle module is used to read from a binary file?**

- a. dump()
- b. load()
- c. All of the above
- d. None of the above

**Q14. Which method is used for object deserialization?**

- a. Pickling
- b. Unpickling
- c. All of the above
- d. None of the above

**Q15. Which of the following is the correct syntax to read from a file using load function?**

- a. pickle.load(<filehandle>)
- b. <object> - load.pickle(<filehandle>)
- c. <object> - pickle.load(<filehandle>)
- d. All of the above

**Q16. Which method of pickle module is used to write onto a binary file?**

- a. dump()
- b. load()
- c. All of the above
- d. None of the above

**Q17. Which of the following file modes open a file for reading and writing both in the binary file?**

- a. r
- b. rb
- c. rwb
- d. rb+

**Q18. Which of the following file modes that opens a file for reading and writing both and overwrites the existing file if the file exists otherwise creates a new file ?**

- a. w
- b. wb+
- c. rwb
- d. rb

**Q19. Which of the following file modes opens a file for appending and reading in a binary file and moves the files pointer at the end of the file if the file already exists or creates a new file?**

- a. .a
- b. .a+
- c. .ab+
- d. .ab

**Q20. Which of the following file modes will not delete the existing data in binary file?**

- a. .wb
- b. .w
- c. .a
- d. .ab

## ANSWER KEY

|     |      |      |      |
|-----|------|------|------|
| 1-A | 6-A  | 11-A | 16-A |
| 2-A | 7-C  | 12-A | 17-D |
| 3-D | 8-A  | 13-B | 18-B |
| 4-A | 9-A  | 14-B | 19-C |
| 5-C | 10-C | 15-C | 20-D |

### CSV FILES

Q1 \_\_\_\_\_ is a file format which stores records separated by comma.

- a. .tsv
- b. .csv
- c. .py
- d. .bin

Q2. The CSV files can be operated by \_\_\_\_\_ software.

- a. Spreadsheet
- b. Notepad
- c. MS Excel
- d. All of the above

Q3. When you read csv file using `csv.reader()` function it returns the values in \_\_\_\_\_ object.

- a. dictionary
- b. tuple
- c. nested list
- d. sets

Q4. CSV module allows to write multiple rows using \_\_\_\_\_ function.

- a. `writerows()`
- b. `writerow()`
- c. `writer()`
- d. None of the above

Q5. Which of the following parameter needs to be added with `open` function to avoid blank row followed file each row in CSV file?

- a. delimiter
- b. newline
- c. writer, delimiter
- d. file object

Q6. which is the correct way to import a csv module?

- a. import csv
- b. from csv import \*
- c. None of the above
- d. Both A & B

Q7. Observe the following code and fill the blank in statement1

```
import csv
with _____ as f: #statement1
r = csv._____(f) #statement2
for row in _____: #statement3
print(_____) #statement4
```

- a. open("data.csv")
- b. f=open("data.csv")
- c. Both A & B are Correct
- d. Both A & B are incorrect

Q8. Observe the following code and fill the blank in statement2

```
import csv

with _____ as f: #statement1

r = csv._____(f) #statement2

for row in _____: #statement3

print(_____) #statement4
```

- a. load
- b. read()
- c. reader()
- d. readlines()

Q9. Observe the following code and fill the blank in statement3

```
import csv

with _____ as f: #statement1

r = csv._____(f) #statement2

for row in _____: #statement3

print(_____) #statement4
```

- a. f
- b. r
- c. r,f
- d. None of the above

Q10.Observe the following code and fill the blank in statement4

```
import csv

with _____ as f: #statement1

r = csv._____(f) #statement2

for row in _____: #statement3

print(_____) #statement4
```

- a. r
- b. row
- c. f
- d. csv

ANSWER KEY

|     |     |     |     |      |
|-----|-----|-----|-----|------|
| 1.B | 2.D | 3.C | 4.A | 5.B  |
| 6.D | 7.A | 8.C | 9.B | 10.B |

**Key Point on Data Structure**

**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.

**Stack:** It is a linear data structure.

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 operation with stack:**

Push() : Insert the element in stack

**Pop :** Delete the element from stack4.

**Data Structure**

1. \_\_\_\_\_ is a way to represent data in memory.

- a. Data Handling
  - b. Data Structure
  - c. Data Dumping
  - d. Data Collection
2. Python built-in data structures are
- a. integer,float,string
  - b. list,tuple,dictionary,sets
  - c. math,pyplot



3. Data structure can be of two type's namely \_\_\_\_\_
  - a. Simple and Compound
  - b. Simple and Nested
  - c. Sequential and random
  - d. All of the above
4. Array or linear list comes under the category of \_\_\_\_\_
  - a. Simple Data Structure
  - b. Compound Data Structure
  - c. random
  - d. None of these
5. Compound Data structure can be \_\_\_\_\_ & \_\_\_\_\_
  - a. Sequential and random
  - b. Simple & Nested
  - c. Linear & Non Linear
6. The examples of Linear Data Structures are
  - a. Stacks,Queues,Linked list
  - b. int,float,complex
  - c. Operators,tokens,punctuators
7. Stacks follows \_\_\_\_\_ order
  - a. FIFO (First In First Out )
  - b. LIFO (Last In First Out)
  - c. Random
8. Queue follows \_\_\_\_\_ order
  - a. FIFO (First In First Out )
  - b. LIFO (Last In First Out)
  - c. Random
9. Main Operations in Stacks are called
  - a. Insertion and deletion
  - b. append and insertion
  - c. Push and Pop
10. Main Operations in Queue are called
  - a. Insertion and deletion
  - b. append and insertion
  - c. Push and Pop
11. In Stack Insertion and deletion of an element is done at single end called \_\_\_\_\_
  - a. Start
  - b. Last
  - c. Top
  - d. Bottom

- 12 In stack we cannot insert an element in between the elements that are already inserted.
- True
  - False
13. The process of visiting each element in any Data structure is termed as \_\_\_\_\_
- Visiting
  - Searching
  - Traversing
  - Movement
14. While implementing Stack using list when we want to delete element we must use pop function as \_\_\_\_\_
- list.pop(pos)
  - list.pop(0)
  - list.pop()
15. Arranging elements of a data structure in increasing or decreasing order is known as \_\_\_\_\_
- Searching
  - Arrangement
  - Sorting
  - Indexing
16. Searching of any element in a data structure can be done in 2 ways \_\_\_\_\_ and \_\_\_\_\_
- Sequential and random
  - linear and non linear
  - linear and binary
17. \_\_\_\_\_ is an example of nonlinear data structure
- Stack
  - Queue
  - Sorting
  - Tree
18. In a stack, if a user tries to remove an element from empty stack it is called \_\_\_\_\_
- Underflow
  - Empty
  - Overflow
  - Garbage Collection
19. What is the value of the postfix expression  $6\ 3\ 2\ 4\ +\ -\ *$
- 1
  - 40
  - 74
  - 18

20. If the elements “A”, “B”, “C” and “D” are placed in a stack and are deleted one at a time, in what order will they be removed?

- a. ABCD
- b. DCBA
- c. DCAB
- d. ABDC

21. Which of the following data structure is linear type?

- a. Stack
- b. Array
- c. Queue
- d. All of the above

22. The postfix form of the expression  $(A + B) * (C * D - E) * F / G$  is?

- a.  $AB + CDE * - * F * G /$
- b.  $AB + CD * E - FG /**$
- c.  $AB + CD * E - F ** G /$
- d.  $AB + CD * E - * F * G /$

23. The postfix form of  $A * B + C / D$  is?

- a.  $*AB / CD +$
- b.  $AB * CD / +$
- c.  $A * BC + / D$
- d.  $ABCD + / *$

24. Which of the following statement(s) about stack data structure is/are NOT correct?

- Stack data structure can be implemented using linked list
- New node can only be added at the top of the stack
- Stack is the FIFO data structure
- The last node at the bottom of the stack has a NULL link

|      |      |      |      |      |
|------|------|------|------|------|
| 1.B  | 2.B  | 3.A  | 4.A  | 5.C  |
| 6.A  | 7.B  | 8.A  | 9.C  | 10.A |
| 11.C | 12.A | 13.C | 14.C | 15.C |
| 16.C | 17.D | 18.A | 19.D | 20.B |
| 21.D | 22.B | 23.B | 24.C | 25   |

### Accession and Reasoning

1. Amit, a student of class 12th, is learning CSV File Module in Python. During examination, he has been assigned an incomplete python code (shown below) to create a CSV File 'School.csv' (content shown below). Help him in completing the code which creates the desired CSV File.

CSV File

1, AKASH, XII, A

2, AKRITI, XII, A

3, ISHA, XII, A

4, RASHI, XII, A

5, SEJAL, XII, A

Incomplete Code

```
import _____ #Statement-1
```

```
fh = open(_____, _____, newline="") #Statement-2
```

```
stuwriter = csv._____ #Statement-3
```

```
data = []
```

```
header = ['ROLL_NO', 'NAME', 'CLASS', 'SECTION']
```

```
data.append(header)
```

```
for i in range(5):
```

```
roll_no = int(input("Enter Roll Number : "))
```

```
name = input("Enter Name : ")
```

```
Class = input("Enter Class : ")
```

```
section = input("Enter Section : ")
```

```
rec = [_____] #Statement-4
```

```
data.append(rec)
```

```
stuwriter. _____ (data) #Statement-5
```

fh.close()

**i.** Identify the suitable code for blank space in line marked as Statement-1.

a) csv file

b) CSV

c) csv

d) Csv

**Correct Answer: c) csv**

**ii.** Identify the missing code for blank space in line marked as Statement-2?

a) "School.csv","w"

b) "Student.csv","w"

c) "Student.csv","r"

d) "School.csv","r"

**Correct Answer: a) "School.csv","w"**

**iii.** Choose the function name (with argument) that should be used in the blank space of line marked as Statement-3

a) reader (fh)

b) reader (MyFile)

c) writer (fh)

d) writer (MyFile)

**Correct Answer: c) writer (fh)**

**iv.** Identify the suitable code for blank space in line marked as Statement-4.

a) 'ROLL\_NO', 'NAME', 'CLASS', 'SECTION'

b) ROLL\_NO, NAME, CLASS, SECTION

c) 'roll\_no','name','Class','section'

d) roll\_no,name,Class,section

**Correct Answer: d) roll\_no,name,Class,section**

v. Choose the function name that should be used in the blank space of line marked as Statement-5 to create the desired CSV File?

a) dump( )

b) load( )

c) writerows( )

d) writerow( )

**Correct Answer: c) writerows( )**

2: Amritya Seth is a programmer, who has recently been given a task to write a python code to perform the following binary file operations with the help of two user defined functions/modules:

a. AddStudents() to create a binary file called STUDENT.DAT containing student information – roll number, name and marks (out of 100) of each student.

b. GetStudents() to display the name and percentage of those students who have a percentage greater than 75. In case there is no student having percentage > 75 the function displays an appropriate message. The function should also display the average percent.

He has succeeded in writing partial code and has missed out certain statements, so he has left certain queries in comment lines. You as an expert of Python have to provide the missing statements and other related queries based on the following code of Amritya.

Answer any four questions (out of five) from the below mentioned questions.

```
import pickle
```

```
def AddStudents():
```

```
_____ #1 statement to open the binary file to
```

```
write data
```

```
while True:
```

```
Rno = int(input("Rno :"))
```

```
Name = input("Name : ")
```

```
Percent = float(input("Percent :"))
```

```
L = [Rno, Name, Percent]
```

```
_____ #2 statement to write the list L
```

into the file

```
Choice = input("enter more (y/n): ")
```

```
if Choice in "nN":
```

```
break
```

```
F.close()
```

```
def GetStudents():
```

```
Total=0
```

```
Countrec=0
```

```
Countabove75=0
```

```
with open("STUDENT.DAT","rb") as F:
```

```
while True:
```

```
try:
```

```
_____ #3 statement to read
```

```
from the file
```

```
Countrec+=1
```

```
Total+=R[2]
```

```
if R[2] > 75:
```

```
print(R[1], " has percent =
```

```
",R[2])
```

```
Countabove75+=1
```

```
except:
```

```
break
```

```
if Countabove75==0:
```

```
print("There is no student who has
percentage more than 75")

average=Total/Countrec

print("average percent of class = ",average)
```

```
AddStudents()
```

```
GetStudents()
```

**i.** Which of the following commands is used to open the file “STUDENT.DAT” for writing only in binary format? (marked as #1 in the Python code)

- a. `F= open("STUDENT.DAT",'wb')`
- b. `F= open("STUDENT.DAT",'w')`
- c. `F= open("STUDENT.DAT",'wb+')`
- d. `F= open("STUDENT.DAT",'w+')`

Correct Answer: a. `F= open("STUDENT.DAT",'wb')`

**ii.** Which of the following commands is used to write the list L into the binary file, STUDENT.DAT? (marked as #2 in the Python code)

- a. `pickle.write(L,f)`
- b. `pickle.write(f, L)`
- c. `pickle.dump(L,F)`
- d. `f=pickle.dump(L)`

**Correct Answer: c. pickle.dump(L,F)**

**iii.** Which of the following commands is used to read each record from the binary file STUDENT.DAT? (marked as #3 in the Python code)

- a. `R = pickle.load(F)`
- b. `pickle.read(r,f)`
- c. `r= pickle.read(f)`
- d. `pickle.load(r,f)`

**Correct Answer: a. R = pickle.load(F)**



iv. Which of the following statement(s) are correct regarding the file access modes?

- a. 'r+' opens a file for both reading and writing. File object points to its beginning.
- b. 'w+' opens a file for both writing and reading. Adds at the end of the existing file if it exists and creates a new one if it does not exist.
- c. 'wb' opens a file for reading and writing in binary format. Overwrites the file if it exists and creates a new one if it does not exist.
- d. 'a' opens a file for appending. The file pointer is at the start of the file if the file exists.

**Correct Answer: a**

v. Which of the following statements correctly explain the function of seek() method?

- a. tells the current position within the file.
- b. determines if you can move the file position or not.
- c. indicates that the next read or write occurs from that position in a file.
- d. moves the current file position to a given specified position

**Correct Answer: d**

\*\*\*\*\*

**KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION**  
**TERM-1 EXAMINATION (ONE)-2021-22 SET-1**

Class –XII

SUB-Computer Sc.

Max. Marks: 35

Duration: 1:30 Hrs

**General Instructions:**

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Section A and Section B have choices.
3. Section - A has 35 MCQ/True or False questions of 1 marks each. Any 27 questions to be answered.
4. Section – B has 2 questions, each question includes 5 MCQ questions, Attempt any 4 questions.

| Ques No. | Section-I                                                                                                                                                                                                                                                                                  | Mark s Allotted |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
|          | Select the most appropriate option out of the options given for each question.                                                                                                                                                                                                             |                 |
| 1        | Consider a list L = [5, 10, 15, 20], which of the following will result in an error:-<br>a) L[0] += 3                      b) L += 3                      c) L *= 3                      d) L[1] = 45                                                                                      | 1               |
| 2        | Find the operator which cannot be used with a string in Python from the following:-<br>a) //                      b) *                      c) +                      d) in                                                                                                                | 1               |
| 3        | Consider a tuple in python named Months = ('Jul', 'Aug', 'Sep'). Identify the invalid statement(s) from the given below statements:-<br>a)S = Months[0]                      b)print(Months[2])<br>c)Months[1] = 'Oct'                      d)LIST1 =list(Months)                          | 1               |
| 4        | Functions that do not return any value are known as:-<br>a)Fruitful functions                      b)Void functions<br>c)Standard python functions                      d)User-defined functions                                                                                           | 1               |
| 5        | Which is the correct dictionary declaration?<br>a)d1={ 1:'January',2:'February',3:'March'}                      b)d2=(1:'January',2:'February',3:'March')<br>c)d3={ 1:'January',2:'February',3:'March'}                      d)d4={ 1:January,2:February,3:March}                          | 1               |
| 6        | Which of the following is a wrong way of defining a function:-<br>a)def f(x=10, y=20, z=30)                      b)def f(x, y, z)<br>c)def f(x=10, y, z)                      d)def f(x, y=20, z=30)                                                                                       | 1               |
| 7        | A void function also returns a _____ value to its caller.                                                                                                                                                                                                                                  | 1               |
| 8        | What is the area of memory called, which stores the parameters and local variables of a function call?<br>a)Heap                      b)Queue                      c)Stack                      d)Array                                                                                    | 1               |
| 9        | Rohan wants to drive a car but He is unable to drive because his age is below 18. A python code is written to check his age .identify it is correct or incorrect.<br>Age=input("enter age:")<br>if age<=18:<br>print("you are not eligible")<br>a)Correct                      b)Incorrect | 1               |
| 10       | CSV stands for<br>a)Column Separated Values                      b)Comma Separated Values<br>c)Comma Started Values                      d)Column Separated Values                                                                                                                         | 1               |
| 11       | What is the output of the function shown below (random module has already been imported)?<br>print(random.choice('sun'))<br>a)sun                      b)u                      c)Either s, u or n                      d>Error                                                            | 1               |
| 12       | What is the default mode of opening a file in python?<br>a)read                      b)write                      c)append                      d)read and write                                                                                                                           | 1               |
| 13       | Which of the following expressions is an example of type casting?<br>a)4.0+float(6)                      b)5.3+6.3                      c)5.0+3                      d)None of these                                                                                                       | 1               |
| 14       | To read twelve characters from a file object f1, we use<br>a)f1.read(12)                      b)f1.read()                      c)f1.readline()                      d)read(f1,12)                                                                                                          | 1               |
| 15       | In which of the following flie modes, the existing data of file will not be lost?<br>a)wb+                      b)wb                      c)rb                      d)w+                                                                                                                   | 1               |
| 16       | What is the output of the following Python Code; Select any one of the following options?<br>import random<br>print(int(random.random()*5)<br>a)Always generate 0                                                                                                                          | 1               |

|    |                                                                                                                                                                                                                                                                                                                                                                                   |   |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|    | b)Generate any number between 0 to 4(including both)<br>c)Generate any number between 0 to 5(including both)                                                                                                                                                                                                                                                                      |   |
| 17 | Which of the following is valid variable name:-<br>a)Student name                      b)3Number                      c)%name%                      d)Block_number                                                                                                                                                                                                                | 1 |
| 18 | What will be the output after the following statements?<br>a = [0, 1, 2, 3]<br>del a[:]<br>print(a)<br>a)None                                      b)[]                                      c)[0, 1, 2, 3]                      d)NameError                                                                                                                                      | 1 |
| 19 | What will be the output after the following statements?<br>x = 27<br>y = 9<br>while x < 30 and y < 15:<br>x = x + 1<br>y = y + 1<br>print(x,y)<br>a) 26 11                                      b) 25 11                                      c) 30 12                                      d) 26 10                                                                              | 1 |
| 20 | What will the following code produce?<br>T=['kvs', 'rpr']<br>T1=range(len(T))<br>for i in T1:<br>T[i]=T[i].upper()<br>print(T)<br>a)['KVS', 'RPR']                                      b)['kvs', 'rpr']                                      c)['Kvs', 'Rpr']                                      d)Error                                                                       | 1 |
| 21 | Find out the type of error if any-<br>if v <5:<br>print("KVS")<br>else:<br>print("CBSE")<br>a)No Error                                      b)Declaration of v                                      c): with else not required                                      d)Indentation Error                                                                                           | 1 |
| 22 | Consider square numbers defined as follows:<br>compute(1) = 1<br>compute(N) = compute(N-1) + 2N-1<br>According to this definition, what is compute (3)?<br>a)compute(3) = compute(2) +compute(1)                                      b)compute(3) = compute(2) -2*3+1<br>b)compute(3) = compute(2) + 2*3-1                                      d)compute(3) = compute(3) +2*3-1 | 1 |
| 23 | When you open a file for writing, if the file does not exist, an error occurs.(True/False)                                                                                                                                                                                                                                                                                        | 1 |
| 24 | The relative path for a file always remains same even after changing the directory.(True/False)                                                                                                                                                                                                                                                                                   | 1 |
| 25 | The value of the expressions 4/(3*(4-2)) and 4/3*(4-2) is the same.(True/False)                                                                                                                                                                                                                                                                                                   | 1 |
| 26 | The command to merge the dictionary Book with Library the command would be:<br>a) d=Book+Library                                      b) print(Book+Library)<br>c)Book.update(Library)                                      d)Library.update(Book)                                                                                                                                | 1 |
| 27 | Identify the correct option to add new value 50 to existing tuple T<br>T = (11,22,33,44,55)<br>a)T = T + 66                                      b)T = T + 66                                      c)T = T + (66,)                                      d)T = T + (66)                                                                                                            | 1 |
| 28 | Find and write the output of the following python code:<br>a=10<br>def call():<br>global a<br>a=15<br>b=20<br>print(a)<br>call()<br>a)25                                      b)35                                      c)15                                      d)10                                                                                                            | 1 |
| 29 | Which of the following Python codes will result in an error?<br>object = 'a'                                                                                                                                                                                                                                                                                                      | 1 |





KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION  
TERM END EXAMINATION (ONE)-2021-22  
Marking Scheme

Class –XII

SUB-Computer Sc.

| Ques No | Section-I                                                                      | Marks Allotted |
|---------|--------------------------------------------------------------------------------|----------------|
|         | Select the most appropriate option out of the options given for each question. |                |
| 1       | b                                                                              | 1              |
| 2       | a                                                                              | 1              |
| 3       | c                                                                              | 1              |
| 4       | b                                                                              | 1              |
| 5       | c                                                                              | 1              |
| 6       | c                                                                              | 1              |
| 7       | None                                                                           | 1              |
| 8       | c                                                                              | 1              |
| 9       | b                                                                              | 1              |
| 10      | b                                                                              | 1              |
| 11      | c                                                                              | 1              |
| 12      | a                                                                              | 1              |
| 13      | a                                                                              | 1              |
| 14      | a                                                                              | 1              |
| 15      | c                                                                              | 1              |
| 16      | b                                                                              | 1              |
| 17      | d                                                                              | 1              |
| 18      | b                                                                              | 1              |
| 19      | c                                                                              | 1              |
| 20      | a                                                                              | 1              |
| 21      | b                                                                              | 1              |
| 22      | b                                                                              | 1              |
| 23      | False                                                                          | 1              |
| 24      | False                                                                          | 1              |
| 25      | False                                                                          | 1              |
| 26      | c                                                                              | 1              |
| 27      | c                                                                              | 1              |
| 28      | c                                                                              | 1              |
| 29      | d                                                                              | 1              |
| 30      | keyword, identifier                                                            | 1              |
| 31      | d                                                                              | 1              |
| 32      | b                                                                              | 1              |
| 33      | b                                                                              | 1              |
| 34      | global, local                                                                  | 1              |
| 35      | a                                                                              | 1              |
|         | Section-II (Case Study Based Question)                                         |                |
| 36      | Any Four                                                                       |                |
| i)      | c                                                                              | 1              |
| ii)     | b                                                                              | 1              |
| iii)    | c                                                                              | 1              |
| iv)     | d                                                                              | 1              |
| v)      | c                                                                              | 1              |
| 37      | Any Four                                                                       |                |
| i)      | d                                                                              | 1              |
| ii)     | b                                                                              | 1              |
| iii)    | c                                                                              | 1              |
| iv)     | b                                                                              | 1              |
| v)      | a                                                                              | 1              |



# KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

## Term-I Examination – 2021-22

### Model Question Paper-Set-2

Class- XII, Subject – Computer Science (083)

Duration: 90 mins.

MM: 35

#### *General Instructions to the Examinee:*

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 is having MCQs (Attempt 27 out of 35 questions).
4. Part- B has two Case based questions.
  - a. Each case study has 4 case-based subparts.
  - b. An examinee is to attempt any 4 out of the 5 subparts.
5. All programming questions are to be answered using Python Language only.

#### **Part-A**

**(Attempt any 27 questions from question no 1 to 35.)**

1. What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? 1  
from random import randint  
LST=[5,10,15,20,25,30,35,40,45,50,60,70]  
first = randint(3,8) – 1  
second = randint(4,9) – 2  
third = randint(6,11) – 3  
print(LST[first], "#", LST[second], "#", LST[third], "#")
  - a) 20#25#25#
  - b) 30#40#70#
  - c) 15#60#70#
  - d) 35#40#60#
2. Specify the maximum values that can be assigned to each of the variables first, second and third in the code given in Question no. 1 - 1
  - a) First: 6, Second: 6, Third: 7
  - b) First: 7, Second: 7, Third: 8
  - c) First: 3, Second: 4, Third: 6
  - d) First: 8, Second: 8, Third: 9
3. Which of the following is not a valid identifier name in Python? 1
  - (a) First\_Name
  - (b) \_Area
  - (c) 2nd\_num
  - (d) While
4. Which statement is correct for dictionary? 1
  - (a) A dictionary is an ordered set of key:value pair
  - (b) each of the keys within a dictionary must be unique
  - (c) each of the values in the dictionary must be unique
  - (d) values in the dictionary are immutable
5. Identify the valid declaration of **Record**: 1  
Record=(1342, "Pooja" , 45000, "Sales")
  - (a) List
  - (b) Tuple
  - (c) String
  - (d) Dictionary
6. Which of the following functions do we use to write data in a binary file? 1
  - (a) writer( )
  - (b) output( )
  - (c) dump( )
  - (d) send( )



7. Which operator is used for replication? 1  
 (a) +  
 (b) %  
 (c) \*  
 (d) //
8. Which of the following functions generates an integer? 1  
 (a) uniform( )  
 (b) randint( )  
 (c) random( )  
 (d) None of the above
9. Consider the tuple in python named DAYS=( "SUN", "MON", "TUES"). 1  
 Identify the invalid statement(s) from the given below statements:  
 (a) S=DAYS[1]  
 (b) print(DAYS[2])  
 (c) DAYS[0]= "WED"  
 (d) LIST=list(DAYS)
10. t1=(2,3,4,5,6) 1  
 print(t1.index(4))  
 Output will be –  
 (a) 4  
 (b) 5  
 (c) 6  
 (d) 2
11. Which of the following statements correctly explain the function of tell() 1  
 method?  
 (a) tells the current position within the file.  
 (b) tell the name of file.  
 (c) move the current file position to a different location.  
 (d) it changes the file position only if allowed to do so else returns an error.
12. Which of the following statements correctly explain the function of seek() 1  
 method?  
 (a) tell the current position within the file.  
 (b) indicate that the next read or write occurs from that position in a file.  
 (c) determine if you can move the file position or not.  
 (d) move the current file position to a different location at a defined offset.
13. Which of the following command is used to open a file "c:\temp.txt" in read- 1  
 mode only?  
 (a) infile = open("c:\temp.txt", "r")  
 (b) infile = open("c:\\temp.txt", "r")  
 (c) infile = open(file = "c:\temp.txt", "r+")  
 (d) infile = open(file = "c:\\temp.txt", "r+")
14. Which of the following command is used to open a file "c:\temp.txt" in write- 1  
 mode only?  
 (a) outfile = open("c:\temp.txt", "w")  
 (b) outfile = open("c:\\temp.txt", "w")  
 (c) outfile = open(file = "c:\temp.txt", "w+")  
 (d) outfile = open(file = "c:\\temp.txt", "w+")

15. Which of the following command is used to open a file “c:\temp.txt” in append-mode? 1  
 (a) outfile = open(“c:\\temp.txt”, “a”)  
 (b) outfile = open(“c:\\temp.txt”, “rw”)  
 (c) outfile = open(“c:\temp.txt”, “w+”)  
 (d) outfile = open(“c:\\temp.txt”, “r+”)
16. Which of the following commands can be used to read “n” number of characters from a file using the file object <file>? 1  
 (a) file.read(n)  
 (b) n = file.read()  
 (c) file.readline(n)  
 (d) file.readlines()
17. Which of the following commands can be used to read the entire contents of a file as a string using the file object <tmpfile>? 1  
 (a) tmpfile.read(n)  
 (b) tmpfile.read()  
 (c) tmpfile.readline()  
 (d) tmpfile.readlines()
18. Which of the following commands can be used to read the remaining lines in a file using the file object <tmpfile>? 1  
 (a) tmpfile.read(n)  
 (b) tmpfile.read()  
 (c) tmpfile.readline()  
 (d) tmpfile.readlines()
19. Which of the following statement is False regarding the opening modes of a file? 1  
 (a) When you open a file for reading, if the file does not exist, an error occurs.  
 (b) When you open a file for reading, if the file does not exist, the program will open an empty file.  
 (c) When you open a file for writing, if the file does not exist, a new file is created.  
 (d) When you open a file for writing, if the file exists, the existing file is overwritten with the new file.
20. Which module is required to use built in function dump() 1  
 (a) Math (b)flush (c)pickle (d)csv
21. Which of the following function is used to write data in binary mode? 1  
 (a)write (b)output (c)dump (d)send
22. To read 2 characters from file object f1 command should be 1  
 (a)f1.read(2) (b)f1.read() (c)f1.readline() (d) f1.readlines()
23. To get byte position from the beginning of file, function used is - 1  
 (a)seek (b)tell (c)read (d)write
24. The file pointer, used to go to particular position 1  
 (a)seek (b)tell (c)read (d)write

25. In regards to separated value files such as .csv and .tsv, what is the delimiter? 1
- Any character such as the comma (,) or tab (\t) that is used to separate the column data.
  - Delimiters are not used in separated value files
  - Anywhere the comma (,) character is used in the file
  - Any character such as the comma (,) or tab (\t) that is used to separate the row data
26. In separated value files such as .csv and .tsv, what does the first row in the file typically contain? 1
- The author of the table data
  - The source of the data
  - Notes about the table data
  - The column names of the data
27. Assume you have a file object my\_data which has properly opened a separated value file that uses the tab character (\t) as the delimiter. What is the proper way to open the file using the Python csv module and assign it to the variable csv\_reader? Assume that csv has already been imported. 1
- csv.tab\_reader(my\_data)
  - csv.reader(my\_data)
  - csv.reader(my\_data, delimiter='\t')
  - csv.reader(my\_data, tab\_delimited=True)
28. When iterating over an object returned from csv.reader(), what is returned with each iteration? For example, given the following code block that assumes csv\_reader is an object returned from csv.reader(), what would be printed to the console with each iteration? 1
- ```
for item in csv_reader:
    print(item)
```
- The full line of the file as a string
 - The row data as a list
 - The individual value data that is separated by the delimiter
 - The column data as a list
29. Find the output of the following: 1
- ```
>>>Line = "Fun with Python"
>>> print (Name [: 5 : -1])
```
- ith Python
  - th Python
  - nohtyP ht
  - nohty
30. What will be the Output for the following code – 1
- ```
Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"]
del Language[4]
Language.remove("JAVA")
Language.pop(3)
print(Language)
```
- ['C', 'C++', 'VB', 'FORTRAN']
 - ['C', 'C++', 'Python', 'FORTRAN']
 - ['C', 'C++', 'BASIC', 'FORTRAN']
 - ['C', 'C++', 'Python', 'BASIC']

31. An absolute path name begins at the _____ 1
 (a) Leaf
 (b) Stem
 (c) current directory
 (d) root
32. What happens if a local variable exists with the same name as the global variable you want to access? 1
 (a) Error
 (b) The local variable is shadowed
 (c) Undefined behavior
 (d) The global variable is shadowed
33. Choose the correct option with reference to below Python code? 1
- ```
def fn(a):
 print(a)
x=90
fn(x)
```
- (a) x is the formal argument.  
 (b) a is the actual argument.  
 (c) fn(x) is the function signature.  
 (d) x is the actual argument.
34. What is the output of the following – 1  
`print(21//9%3, 2**2**3)`  
 (a) 7 64  
 (b) 2 256  
 (c) 7 256  
 (d) 2 64
35. Assertion (A) : Keys in a Python dictionary should be unique. 1  
 Reason (R) : Only immutable data types can be used as keys.
- (a) A is true but R is false.  
 (b) A is false but R is true.  
 (c) Both A and R are false.  
 (d) Both A and R are true but R is not the correct explanation of A.  
 (e) Both A and R are true and R is the correct explanation of A.

### Part-B

**(Attempt any 4 out of the 5 subparts in each question)**

36. In an online lottery system, names having exactly 5 characters are to be displayed. Piyush has been asked to complete this task. He has created a function FindNames() in python which read contents from a text file LOTTERY.TXT, which contains names of participants, and displays those names, which are having exactly 5 characters. He got confused with few statements and left it blank. Help him complete the code.
- ```
def FindNames():
    c=0
    file=open('LOTTERY.TXT', '_____') #Statement-1
    line = file._____ #Statement-2
    word = _____ #Statement-3
    for c in word:
        if _____: #Statement-4
            print(c)
    _____ #Statement-5
FindNames()
```

- (i) Write mode of opening the file in statement-1? 1
 (a) A
 (b) Ab
 (c) W
 (d) r
- (ii) Fill in the blank in statement-2 to read the data from the file. 1
 (a) File.Read()
 (b) file.read()
 (c) read.lines()
 (d) readlines()
- (iii) Fill in the blank in statement-3 to read data word by word. 1
 (a) Line.Split()
 (b) Line.split()
 (c) line.split()
 (d) split.word()
- (iv) Fill in the blank in statement-4, which display the word having exactly 5 characters. 1
 (a) len(c) ==5
 (b) len(c)<5
 (c) len ()= =5
 (d) len ()==6
- (v) Fill in the blank in Statement-5 to close the file. 1
 (a) file.close()
 (b) File.Close()
 (c) Close()
 (d) end()

37. Snigdha is making a software on “Countries & their Capitals” in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists some records (Country & Capital). She has written the following code in python. As a programmer, you have to help her to successfully execute the program.

```
import _____ # Statement-1
def AddNewRec(Country,Capital): # Fn. to add a new record in CSV file
    f=open(“CAPITAL.CSV”,_____) # Statement-2
    fwriter=csv.writer(f)
    fwriter.writerow([Country,Capital])
    _____ # Statement-3
def ShowRec(): # Fn. to display all records from CSV file
    with open(“CAPITAL.CSV”,”r”) as NF:
        NewReader=csv._____(NF) # Statement-4
        for rec in NewReader:
            print(rec[0], “#”, rec[1])

AddNewRec(“INDIA”, “NEW DELHI”)
AddNewRec(“CHINA”, “BEIJING”)
ShowRec() # Statement-5
```

- (i) Which module should be imported in Statement-1. 1
- (a) pickle
 - (b) csv
 - (c) file
 - (d) text
- (ii) Which file mode to be passed to add new record in Statement-2. 1
- (a) w+
 - (b) w
 - (c) wb
 - (d) a
- (iii) What should be written in Statement-3 to close the file? 1
- (a) close()
 - (b) fwriter.close()
 - (c) f.close()
 - (d) csv.close()
- (iv) Which function to be used in Statement-4 to read the data from a csv file. 1
- (a) read()
 - (b) readline()
 - (c) readlines()
 - (d) reader()
- (v) The output after executing Statement-5 will be – 1
- (a) (“INDIA”, “NEW DELHI”)
 (“CHINA”, “BEIJING”)
 - (b) INDIA NEW DELHI
 CHINA BEIJING
 - (c) INDIA, NEW DELHI
 CHINA, BEIJING
 - (d) INDIA # NEW DELHI
 CHINA # BEIJING

-----All the Best-----

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

Term-I Examination – 2021-22

Set-2 Answer Key

Class- XII, Subject – Computer Science (083)

Duration: 90 mins.

MM: 35

General Instructions to the Examinee:

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 is having MCQs (Attempt 27 out of 35 questions).
4. Part- B has two questions based on Case studies.
 - a. Each case study has 4 case-based subparts.
 - b. An examinee is to attempt any 4 out of the 5 subparts.
5. All programming questions are to be answered using Python Language only.

Part-A

(Attempt any 27 questions from question no 1 to 35.)

1. What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code?

```
from random import randint
LST=[5,10,15,20,25,30,35,40,45,50,60,70]
first = randint(3,8) – 1
second = randint(4,9) – 2
third = randint(6,11) – 3
print(LST[first],"#", LST[second],"#", LST[third],"#")
```

 - a) **20#25#25#** **A**
 - b) 30#40#70#
 - c) 15#60#70#
 - d) 35#40#60#
2. Specify the maximum values that can be assigned to each of the variables first, second and third in the code given in Question no. 1 -
 - a) First: 6, Second: 6, Third: 7
 - b) **First: 7, Second: 7, Third: 8** **B**
 - c) First: 3, Second: 4, Third: 6
 - d) First: 8, Second: 8, Third: 9
3. Which of the following is not a valid identifier name in Python?
 - (a) First_Name
 - (b) _Area
 - (c) **2nd_num** **C**
 - (d) While
4. Which statement is correct for dictionary?
 - (a) A dictionary is an ordered set of key:value pair
 - (b) **each of the keys within a dictionary must be unique** **C**
 - (c) each of the values in the dictionary must be unique

- (d) values in the dictionary are immutable
5. Identify the valid declaration of **Record**:
Record=(1342, "Pooja", 45000, "Sales")
- (a) List
 - (b) Tuple** **B**
 - (c) String
 - (d) Dictionary
6. Which of the following functions do we use to write data in a binary file?
- (a) writer()
 - (b) output()
 - (c) dump()** **C**
 - (d) send()
7. Which operator is used for replication?
- (a) +
 - (b) %
 - (c) *** **C**
 - (d) //
8. Which of the following functions generates an integer?
- (a) uniform()
 - (b) randint()** **B**
 - (c) random()
 - (d) None of the above
9. Consider the tuple in python named DAYS=("SUN", "MON", "TUES"). Identify the invalid statement(s) from the given below statements:
- (a) S=DAYS[1]
 - (b) print(DAYS[2])
 - (c) DAYS[0]= "WED"** **C**
 - (d) LIST=list(DAYS)
10. t1=(2,3,4,5,6)
print(t1.index(4))
Output will be –
- (a) 4
 - (b) 5
 - (c) 6
 - (d) 2** **D**
11. Which of the following statements correctly explain the function of tell() method?
- (a) tells the current position within the file.** **A**
 - (b) tell the name of file.
 - (c) move the current file position to a different location.
 - (d) it changes the file position only if allowed to do so else returns an error.
12. Which of the following statements correctly explain the function of seek() method?
- (a) tell the current position within the file.
 - (b) indicate that the next read or write occurs from that position in a file. **D**
 - (c) determine if you can move the file position or not.

(d) move the current file position to a different location at a defined offset.

13. Which of the following command is used to open a file “c:\temp.txt” in read-mode only?
(a) infile = open(“c:\temp.txt”, “r”)
(b) infile = open(“c:\\temp.txt”, “r”) **B**
(c) infile = open(file = “c:\temp.txt”, “r+”)
(d) infile = open(file = “c:\\temp.txt”, “r+”)
14. Which of the following command is used to open a file “c:\temp.txt” in write-mode only?
(a) outfile = open(“c:\temp.txt”, “w”)
(b) outfile = open(“c:\\temp.txt”, “w”) **B**
(c) outfile = open(file = “c:\temp.txt”, “w+”)
(d) outfile = open(file = “c:\\temp.txt”, “w+”)
15. Which of the following command is used to open a file “c:\temp.txt” in append-mode?
(a) outfile = open(“c:\\temp.txt”, “a”) **A**
(b) outfile = open(“c:\\temp.txt”, “rw”)
(c) outfile = open(“c:\temp.txt”, “w+”)
(d) outfile = open(“c:\\temp.txt”, “r+”)
16. Which of the following commands can be used to read “n” number of characters from a file using the file object <file>?
(a) file.read(n) **A**
(b) n = file.read()
(c) file.readline(n)
(d) file.readlines()
17. Which of the following commands can be used to read the entire contents of a file as a string using the file object <tmpfile>?
(a) tmpfile.read(n)
(b) tmpfile.read() **B**
(c) tmpfile.readline()
(d) tmpfile.readlines()
18. Which of the following commands can be used to read the remaining lines in a file using the file object <tmpfile>?
(a) tmpfile.read(n)
(b) tmpfile.read()
(c) tmpfile.readline()
(d) tmpfile.readlines() **D**
19. Which of the following statement is False regarding the opening modes of a file?
(a) When you open a file for reading, if the file does not exist, an error occurs. **B**
(b) When you open a file for reading, if the file does not exist, the program will open an empty file.
(c) When you open a file for writing, if the file does not exist, a new file is created.

- (d) When you open a file for writing, if the file exists, the existing file is overwritten with the new file.
20. Which module is required to use built in function dump() **C**
 (a) Math (b)flush (c)**pickle** (d)csv
21. Which of the following function is used to write data in binary mode? **C**
 (a)write (b)output (c)**dump** (d)send
22. To read 2 characters from file object f1 command should be **A**
 (a)**f1.read(2)** (b)f1.read() (c)f1.readline() (d) f1.readlines()
23. To get byte position from the beginning of file, function used is - **B**
 (a)seek (b)**tell** (c)read (d)write
24. The file pointer, used to go to particular position **A**
 (a)**seek** (b)tell (c)read (d)write
25. In regards to separated value files such as .csv and .tsv, what is the delimiter?
 (a) **Any character such as the comma (,) or tab (\t) that is used to separate the column data.** **A**
 (b) Delimiters are not used in separated value files
 (c) Anywhere the comma (,) character is used in the file
 (d) Any character such as the comma (,) or tab (\t) that is used to separate the row data
26. In separated value files such as .csv and .tsv, what does the first row in the file typically contain? **D**
 (a) The author of the table data
 (b) The source of the data
 (c) Notes about the table data
 (d) **The column names of the data**
27. Assume you have a file object my_data which has properly opened a separated value file that uses the tab character (\t) as the delimiter. What is the proper way to open the file using the Python csv module and assign it to the variable csv_reader? Assume that csv has already been imported. **C**
 (a) csv.tab_reader(my_data)
 (b) csv.reader(my_data)
 (c) **csv.reader(my_data, delimiter='\t')**
 (d) csv.reader(my_data, tab_delimited=True)
28. When iterating over an object returned from csv.reader(), what is returned with each iteration? For example, given the following code block that assumes csv_reader is an object returned from csv.reader(), what would be printed to the console with each iteration?
 for item in csv_reader:
 print(item) **B**
 (a) The full line of the file as a string
 (b) **The row data as a list**
 (c) The individual value data that is separated by the delimiter
 (d) The column data as a list

29. Find the output of the following:
 >>>Line = "Fun with Python"
 >>> print (Name [: 5 : -1])
- C**
- (a) ith Python
 (b) th Python
 (c) **nohtyP ht**
 (d) nohty
30. What will be the Output for the following code –
 Language=["C", "C++", "JAVA", "Python", "VB", "BASIC", "FORTRAN"]
 del Language[4]
 Language.remove("JAVA")
 Language.pop(3)
 print(Language)
- B**
- (a) ['C', 'C++', 'VB', 'FORTRAN']
 (b) **['C', 'C++', 'Python', 'FORTRAN']**
 (c) ['C', 'C++', 'BASIC', 'FORTRAN']
 (d) ['C', 'C++', 'Python', 'BASIC']
31. An absolute path name begins at the _____
- D**
- (a) Leaf
 (b) Stem
 (c) current directory
 (d) **root**
32. What happens if a local variable exists with the same name as the global variable you want to access?
- D**
- (a) Error
 (b) The local variable is shadowed
 (c) Undefined behavior
 (d) **The global variable is shadowed**
33. Choose the correct option with reference to below Python code?
 def fn(a):
 print(a)
 x=90
 fn(x)
- D**
- (a) x is the formal argument.
 (b) a is the actual argument.
 (c) fn(x) is the function signature.
 (d) **x is the actual argument.**
34. What is the output of the following –
 print(21//9%3, 2**2**3)
- B**
- (a) 7 64
 (b) **2 256**

- (c) 7 256
- (d) 2 64

35. Assertion (A) : Keys in a Python dictionary should be unique.
Reason (R) : Only immutable data types can be used as keys.

- (a) A is true but R is false. **D**
- (b) A is false but R is true.
- (c) Both A and R are false.
- (d) **Both A and R are true but R is not the correct explanation of A.**
- (e) Both A and R are true and R is the correct explanation of A.

Part-B

(Attempt any 4 out of the 5 subparts in each question)

36. In an online lottery system, names having exactly 5 characters are to be displayed. Piyush has been asked to complete this task. He has created a function FindNames() in python which read contents from a text file LOTTERY.TXT, which contains names of participants, and displays those names, which are having exactly 5 characters. He got confused with few statements and left it blank. Help him complete the code.

```
def FindNames():
    c=0
    file=open('LOTTERY.TXT', '_____') #Statement-1
    line = file._____ #Statement-2
    word = _____ #Statement-3
    for c in word:
        if _____: #Statement-4
            print(c)
            _____ #Statement-5
FindNames()
```

- (i) Write mode of opening the file in statement-1? **D**
 - (a) A
 - (b) Ab
 - (c) W
 - (d) r**
- (ii) Fill in the blank in statement-2 to read the data from the file. **B**
 - (a) File.Read()
 - (b) file.read()**
 - (c) read.lines()
 - (d) readlines()
- (iii) Fill in the blank in statement-3 to read data word by word. **C**
 - (a) Line.Split()
 - (b) Line.split()
 - (c) line.split()**
 - (d) split.word()
- (iv) Fill in the blank in statement-4, which display the word having exactly 5 characters. **A**
 - (a) len(c) ==5**
 - (b) len(c)<5

- (c) len ()= =5
- (d) len ()==6
- (v) Fill in the blank in Statement-5 to close the file.
 - (a) **file.close()**
 - (b) File.Close()
 - (c) Close()
 - (d) end()

A

37. Snigdha is making a software on “Countries & their Capitals” in which various records are to be stored/retrieved in CAPITAL.CSV data file. It consists some records(Country & Capital). She has written the following code in python. As a programmer, you have to help her to successfully execute the program.

```
import _____ # Statement-1
def AddNewRec(Country,Capital): # Fn. to add a new record in CSV file
    f=open(“CAPITAL.CSV”,_____ ) # Statement-2
    fwriter=csv.writer(f)
    fwriter.writerow([Country,Capital])
    _____ # Statement-3
def ShowRec(): # Fn. to display all records from CSV file
    with open(“CAPITAL.CSV”,”r”) as NF:
        NewReader=csv._____(NF) # Statement-4
    for rec in NewReader:
        print(rec[0], “#”, rec[1])

AddNewRec(“INDIA”, “NEW DELHI”)
AddNewRec(“CHINA”, “BEIJING”)
ShowRec() # Statement-5
```

- (i) Which module should be imported in Statement-1.
 - (a) pickle
 - (b) **csv**
 - (c) file
 - (d) text
- (ii) Which file mode to be passed to add new record in Statement-2.
 - (a) w+
 - (b) w
 - (c) wb
 - (d) **a**
- (iii) What should be written in Statement-3 to close the file.
 - (a) close()
 - (b) fwriter.close()
 - (c) **f.close()**
 - (d) csv.close()
- (iv) Which function to be used in Statement-4 to read the data from a csv file.
 - (a) read()
 - (b) readline()
 - (c) readlines()
 - (d) **reader()**

B

D

C

D

(v) The output after executing Statement-5 will be –

- (a) (“INDIA”, “NEW DELHI”)
 (“CHINA”, “BEIJING”)
- (b) INDIA NEW DELHI
 CHINA BEIJING
- (c) INDIA, NEW DELHI
 CHINA, BEIJING
- (d) **INDIA # NEW DELHI**
 CHINA # BEIJING

D

-----XXX-----

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

Term-I Examination – 2021-22

Model Question Paper-Set-3

Class- XII, Subject – Computer Science (083)

Duration: 90 mins.

MM:35

General Instructions to the Examinee:

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 is having MCQs (Attempt 27 out of 35 questions).
4. Part- B has two questions based on Case studies.
 - a. Each case study has 4 case-based subparts.
 - b. An examinee is to attempt any 4 out of the 5 subparts.
5. All programming questions are to be answered using Python Language only.

Part-A (Attempt any 27 questions from question no 1 to 35.)		
1.	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(3,4),2))),end= ' ') print(str(int(math.pow(random.randint(4,4),2)))) What could be the possible outputs out of the given four choices? (a) 2 3 4 (b) 9 16 16 (c) 16 4 16 (d) 2 4 9	1
2.	What is the value of x – $x = 23.14 + 9//2$ a) 27.0 b) 27.64 c) 28 d) 27.14	1
3.	Which type of error will occur when the following code is executed? >>>print('Cloud' + 9) (a) Syntax Error (b) Type Error (c) Name Error (d) Value Error	1
4.	Which of the following operators can be used with strings? (a) /	1

		(b) * (c) % (d) –	
5.		Identify the valid declaration of data : data=(1, “One” , 2 , “Two”, 3, “Three”) (a) List (b) Tuple (c) String (d) Dictionary	1
6.		Which of the following functions do we use to read data in a Binary file? (a) reader() (b) readlines() (c) load() (d) read()	1
7.		‘+’ operator is used for _____ in strings? (a) Replication (b) Duplication (c) Concatenation (d) Updation	1
8.		What will be the maximum and minimum value of span ? >>>span = int(23 + random.random() * 8) (a) 30 and 23 (b) 31 and 23 (c) 30 and 24 (d) 31 and 24	1
9.		Consider the tuple in python named NUM=(1,2,3). What will be the value of DOUBLE, if - >>> DOUBLE=NUM*2 (a) (2,4,6) (b) (1,1,2,2,3,3) (c) (1,2,3,1,2,3) (d) Error	1
10.		t=(1,2,[3,4,5],“Confused”) print(t[3][2]) Output will be – (a) r4 (b) 5 (c) n (d) 2	1
11.		What is the use of seek() method in files? (a) sets the file’s current position at the offset (b) sets the file’s previous position at the offset (c) sets the file’s current position within the file (d) none of the mentioned	1
12.		Find the output of the following code – fp = open(“sample.txt”, “r”) fp.read(8) print(fp.tell()) fp.close() (a) 0	1

	(b) 7 (c) 8 (d) 9	
13.	Which of the following command is used to open a file “c:\newfile.txt” in read and write mode both? (a) infile = open(“c:\ newfile.txt”, “r”) (b) infile = open(“c:\\ newfile.txt”, “r”) (c) infile = open(file = “c:\ newfile.txt”, “r+”) (d) infile = open(file = “c:\\ newfile.txt”, “r+”)	1
14.	Which of the following command is used to open a file “c:\bio.txt” in write mode only? (a) outfile = open(“c:\bio.txt”, “w”) (b) outfile = open(“c:\\bio.txt”, “w”) (c) outfile = open(file = “c:\bio.txt”, “w+”) (d) outfile = open(file = “c:\\bio.txt”, “w+”)	1
15.	Which of the following command is used to open a binary file “c:\record.dat” in append-mode? (a) outfile = open(“c:\\record.dat”, “a”) (b) outfile = open(“c:\\record.dat”, “ab”) (c) outfile = open(“c:\\record.dat”, “wb”) (d) outfile = open(“c:\\record.dat”, “w+”)	1
16.	What will be the output of the following code if content of the file “smile.txt” is – Smiling is infectious, You catch it like the flu. When someone smiled at me today, I started smiling too. file=open(“smile.txt”) contents=file.read() print(file.read(7)) (a) Smiling (b) Smilin (c) ng too. (d) No output	1
17.	The readlines() method returns _____ (a) A string (b) A list of words (c) A list of lines (d) A list of integers	1
18.	In which of the following modes, the existing data of file will not be lost? (a) ab (b) w+ (c) wb (d) wb+	1
19.	If a file is opened for reading, which of the following statement(s) is(are) False? (a) The file must exist on the disk on the specified path. (b) If the file exists at the specified path, the file is successfully opened.	1

	<p>(c) The file, even if at a different location on disk other than the specified path, will get opened.</p> <p>(d) Python gives error if the file does not exist at the specified path.</p>	
20.	<p>Which of the following is not a valid mode of opening a file?</p> <p>(a) ab (b) rw (c) r+ (d) w+</p>	1
21.	<p>Which of the following function is used to read data in binary mode?</p> <p>(a)read (b)reader (c)load (d)readlines</p>	1
22.	<p>Function to read all the characters of a file –</p> <p>(a)f1.read(n) (b)f1.read() (c)f1.readline() (d) f1.readlines()</p>	1
23.	<p>To move a file pointer f, 10 bytes ahead from the current position of file, function used is –</p> <p>(a)f.seek(10) (b)f.seek(10,0) (c) f.seek(10,1) (d) f.seek(10,2)</p>	1
24.	<p>If the content of the file “wish.txt” is – “Happy”, then what will be the content of the file after executing the following statements –</p> <pre>f=open(“wish.txt”, ‘w’) f.write(“Birthday”) f.close()</pre> <p>(a)Happy Birthday (b)HappyBirthday (c)Happy (d)Birthday</p>	1
25.	<p>Which of the following is not a function of csv module?</p> <p>(a) readline() (b) writerow() (c) reader() (d) writer()</p>	1
26.	<p>Whenever possible, what is the recommended way to ensure that a file object is properly closed after usage?</p> <p>(a) By using try block (b) Making sure that close() function is used before end of the script (c) By using the with statement (d) It doesn't matter</p>	1
27.	<p>Which of the following is/are True?</p> <p>(a) When you open a file for reading, if the file does not exist, an error occurs. (b) When you open a file for writing, if the file does not exist, a new file is created. (c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file. (d) All of the above</p>	1
28.	<p>Given the file image.png, which of the following is the correct way to open the file for reading as a buffered binary file?</p>	1

	<p>(a) open("image.png") (b) open("image.png", "r") (c) open("image.png", "rb") (d) open("image.png", "wb")</p>	
29.	<p>What is the output of the following? d = {"one": 'I', "two": 'II', "three": 'III'} for i in d: print(i)</p> <p>(a) one two three (b) I II III (c) one I two II three III (d) 0 1 2</p>	1
30.	<p>What is the output when following code is executed? >>>print (r"Python\tProgram")</p> <p>(a) Python Program (b) r Python Program (c) Error (d) Python\tProgram</p>	1
31.	<p>Which of the following is the use of id() function in python? (a) id returns the identity of the object (b) Every object doesn't have a unique id (c) All of the mentioned (d) None of the mentioned</p>	1
32.	<p>What is the output of the program given below? num = 45 def func (num): num = 23 func (num) print ('num is now', num)</p> <p>(a) num is now 45 (b) num is now 23 (c) num is now 68 (d) Error</p>	1
33.	<p>Consider the expression given below. The value of X is: $X = 2+9*((3*12)-8)/10$</p> <p>(a) 30.0</p>	1

	(b) 27.2 (c) 28.4 (d) 30.8	
34.	Find the output of the following – >>> list1=[1,2,3] >>> list2=[1,2,2,3] >>> list1>list2 (a) Error (b) False (c) True (d) None	1
35.	Assertion (A): Parameters with default arguments can be followed by parameters with no default argument. Reason (R): Syntactically, it would be impossible for the interpreter to decide which values match which arguments if mixed modes were allowed while providing default arguments. (a) A is true but R is false. (b) A is false but R is true. (c) Both A and R are false. (d) Both A and R are true but R is not the correct explanation of A. (e) Both A and R are true and R is the correct explanation of A.	1
Part-B (Attempt any 4 out of the 5 subparts in question no. 36 and 37)		
36.	Shubham Dixit of class 12 is writing a program to create a CSV file “hobby.csv” which will contain Name and hobby name 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,Hobby): # to write / add data into the CSV file f=open(' hobby.csv','____') # Line 2 newFileWriter = csv.writer(f) newFileWriter.writerow([Name,Hobby]) f.close() #csv file reading code def readCsvFile(): # to read data from CSV file newFile = open(' hobby.csv','r') newFileReader = csv._____ (newFile) # Line 3 for row in newFileReader: print (row[0], “@”, row[1]) newFile._____ # Line 4 addCsvFile(“Pranav”, “Cricket”) addCsvFile(“Sunaina”, “Badminton”) addCsvFile(“Manish”, “Painting”) readCsvFile() # Line 5	

	(i) Name the module he should import in Line 1. (a) pickle (b) csv (c) file (d) random	1
	(ii) In which mode, Shubham should open the file to add data into the file.(Line 2) (a) w+ (b) r (c) r+ (d) a	1
	(iii) Fill in the blank in Line 3 to read the data from a csv file. (a) load() (b) read() (c) reader() (d) readline()	1
	(iv) Fill in the blank in Line 4 to close the file.. (a) close() (b) Close() (c) CLOSE() (d) end()	1
	(v) Write the output he will obtain while executing Line 5. (a) Pranav Cricket Sunaina Badminton Manish Painting (b) "Pranav" "Cricket" "Sunaina" "Badminton" "Manish" "Painting" (c) Pranav @ Cricket Sunaina @ Badminton Manish @ Painting (d) "Pranav" @ "Cricket" "Sunaina" @ "Badminton" "Manish" @ "Painting"	1
37.	<p>Subrat Ray is learning to work with Binary files in Python using a process known as Pickling/de-pickling. His teacher has given him the following incomplete code, which is creating a Binary file namely Mydata.dat and then opens, reads and displays the content of this created file.</p> <pre> import _____ #Statement-1 sqlist=list() for k in range(5): sqlist.append(k*k) fout=open("mydata.dat", _____) #Statement-2 _____ (sqlist,fout) #Statement-3 fout.close() fin=open("Mydata.dat", "rb") mylist=_____ (fin) #Statement-4 fin.close() print(mylist) #Statement-5 </pre>	

	(i) Which module should be imported in Statement-1. (a) pickle (b) csv (c) file (d) text	1
	(ii) Which file mode to be passed to write data in file in Statement-2. (a) w+ (b) w (c) wb (d) a	1
	(iii) What should be written in Statement-3 to write data onto the file. (a) dump() (b) write() (c) pickle.dump() (d) writeline()	1
	(iv) Which function to be used in Statement-4 to read the data from the file. (a) load() (b) readline() (c) readlines() (d) pickle.load()	1
	(v) The output after executing Statement-5 will be – (a) 0 1 4 9 16 (b) 1, 4, 9, 16, 25 (c) [0, 1, 4, 9, 16] (d) [1, 4, 9, 16, 25]	1

-----All the Best-----

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

Term-I Examination – 2021-22

Set-B Answer Key

Class- XII, Subject – Computer Science (083)

Duration: 90 mins.

MM:35

General Instructions to the Examinee:

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 is having MCQs (Attempt 27 out of 35 questions).
4. Part- B has two questions based on Case studies.
 - a. Each case study has 4 case-based subparts.
 - b. An examinee is to attempt any 4 out of the 5 subparts.
5. All programming questions are to be answered using Python Language only.

Part-A (Attempt any 27 questions from question no 1 to 35.)		
1.	<p>Consider the following code:</p> <pre>import math import random print(str(int(math.pow(random.randint(2,4),2))),end= ' ') print(str(int(math.pow(random.randint(3,4),2))),end= ' ') print(str(int(math.pow(random.randint(4,4),2))))</pre> <p>What could be the possible outputs out of the given four choices?</p> <p>(a) 2 3 4 (b) 9 16 16 (c) 16 4 16 (d) 2 4 9</p>	B
2.	<p>What is the value of x – $x = 23.14 + 9//2$</p> <p>a) 27.0 b) 27.64 c) 28 d) 27.14</p>	D
3.	<p>Which type of error will occur when the following code is executed?</p> <pre>>>>print('Cloud' + 9)</pre> <p>(a) Syntax Error</p>	

		(b) Type Error (c) Name Error (d) Value Error	B
4.		Which of the following operators can be used with strings? (a) / (b) * (c) % (d) -	B
5.		Identify the valid declaration of data : data=(1, "One" , 2 , "Two", 3, "Three") (a) List (b) Tuple (c) String (d) Dictionary	B
6.		Which of the following functions do we use to read data in a Binary file? (a) reader() (b) readlines() (c) load() (d) read()	C
7.		'+' operator is used for _____ in strings? (a) Replication (b) Duplication (c) Concatenation (d) Updation	C
8.		What will be the maximum and minimum value of span ? >>>span = int(23 + random.random() * 8) (a) 30 and 23 (b) 31 and 23 (c) 30 and 24 (d) 31 and 24	A
9.		Consider the tuple in python named NUM=(1,2,3). What will be the value of DOUBLE, if - >>> DOUBLE=NUM*2 (a) (2,4,6) (b) (1,1,2,2,3,3) (c) (1,2,3,1,2,3) (d) Error	C
10.		t=(1,2,[3,4,5],"Confused") print(t[3][2]) Output will be - (a) 4 (b) 5 (c) n (d) 2	C
11.		What is the use of seek() method in files? (a) sets the file's current position at the offset (b) sets the file's previous position at the offset (c) sets the file's current position within the file (d) none of the mentioned	A

12.	<p>Find the output of the following code –</p> <pre>fp = open("sample.txt", "r") fp.read(8) print(fp.tell()) fp.close()</pre> <p>(a) 0 (b) 7 (c) 8 (d) 9</p>	C
13.	<p>Which of the following command is used to open a file “c:\newfile.txt” in read and write mode both?</p> <p>(a) infile = open(“c:\ newfile.txt”, “r”) (b) infile = open(“c:\\ newfile.txt”, “r”) (c) infile = open(file = “c:\ newfile.txt”, “r+”) (d) infile = open(file = “c:\\ newfile.txt”, “r+”)</p>	D
14.	<p>Which of the following command is used to open a file “c:\bio.txt” in write mode only?</p> <p>(a) outfile = open(“c:\bio.txt”, “w”) (b) outfile = open(“c:\\bio.txt”, “w”) (c) outfile = open(file = “c:\bio.txt”, “w+”) (d) outfile = open(file = “c:\\bio.txt”, “w+”)</p>	B
15.	<p>Which of the following command is used to open a binary file “c:\record.dat” in append-mode?</p> <p>(a) outfile = open(“c:\\record.dat”, “a”) (b) outfile = open(“c:\\record.dat”, “ab”) (c) outfile = open(“c:\\record.dat”, “wb”) (d) outfile = open(“c:\\record.dat”, “w+”)</p>	A
16.	<p>What will be the output of the following code if content of the file “smile.txt” is –</p> <p>Smiling is infectious, You catch it like the flu. When someone smiled at me today, I started smiling too.</p> <pre>file=open(“smile.txt”) contents=file.read() print(file.read(7))</pre> <p>(a) Smiling (b) Smilin (c) ng too. (d) No output</p>	D
17.	<p>The readlines() method returns _____</p> <p>(a) A string (b) A list of words (c) A list of lines (d) A list of integers</p>	C
18.	<p>In which of the following modes, the existing data of file will not be lost?</p> <p>(a) ab (b) w+</p>	A

	(c) wb (d) wb+	
19.	If a file is opened for reading, which of the following statement(s) is(are) False? (a) The file must exist on the disk on the specified path. (b) If the file exists at the specified path, the file is successfully opened. (c) The file, even if at a different location on disk other than the specified path, will get opened. (d) Python gives error if the file does not exist at the specified path.	C
20.	Which of the following is not a valid mode of opening a file? (a) ab (b) rw (c) r+ (d) w+	B
21.	Which of the following function is used to read data in binary mode? (a)read (b)reader (c) load (d)readlines	C
22.	Function to read all the characters of a file – (a)f1.read(n) (b) f1.read() (c)f1.readline() (d) f1.readlines()	B
23.	To move a file pointer f , 10 bytes ahead from the current position of file, function used is - (a)f.seek(10) (b)f.seek(10,0) (c) f.seek(10,1) (d) f.seek(10,2)	C
24.	If the content of the file “wish.txt” is – “Happy”, then what will be the content of the file after executing the following statements – f=open(“wish.txt”, ‘w’) f.write(“Birthday”) f.close() (a)Happy Birthday (b)HappyBirthday (c)Happy (d) Birthday	D
25.	Which of the following is not a function of csv module? (a) readline() (b) writerow() (c) reader() (d) writer()	A
26.	Whenever possible, what is the recommended way to ensure that a file object is properly closed after usage? (a) By using try block (b) Making sure that close() function is used before end of the script (c) By using the with statement (d) It doesn’t matter	C
27.	Which of the following is/are True? (a) When you open a file for reading, if the file does not exist, an error occurs. (b) When you open a file for writing, if the file does not exist, a new file is created. (c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file. (d) All of the above	D

28.	<p>Given the file image.png, which of the following is the correct way to open the file for reading as a buffered binary file?</p> <p>(a) open("image.png") (b) open("image.png", "r") (c) open("image.png", "rb") (d) open("image.png", "wb")</p>	C
29.	<p>What is the output of the following?</p> <pre>d = {"one": 'I', "two": 'II', "three": 'III'} for i in d: print(i)</pre> <p>(a) one two three</p> <p>(b) I II III</p> <p>(c) one I two II three III</p> <p>(d) 0 1 2</p>	A
30.	<p>What is the output when following code is executed?</p> <pre>>>>print (r"Python\tProgram")</pre> <p>(a) Python Program (b) r Python Program (c) Error (d) Python\tProgram</p>	D
31.	<p>Which of the following is the use of id() function in python?</p> <p>(a) id returns the identity of the object (b) Every object doesn't have a unique id (c) All of the mentioned (d) None of the mentioned</p>	A
32.	<p>What is the output of the program given below?</p> <pre>num = 45 def func (num): num = 23 func (num) print ('num is now', num)</pre> <p>(a) num is now 45 (b) num is now 23 (c) num is now 68 (d) Error</p>	A

33.	<p>Consider the expression given below. The value of X is: $X = 2 + 9 * ((3 * 12) - 8) / 10$ (a) 30.0 (b) 27.2 (c) 28.4 (d) 30.8</p>	B
34.	<p>Find the output of the following – >>> list1=[1,2,3] >>> list2=[1,2,2,3] >>> list1>list2 (a) Error (b) False (c) True (d) None</p>	C
35.	<p>Assertion (A) : Parameters with default arguments can be followed by parameters with no default argument. Reason (R) : Syntactically, it would be impossible for the interpreter to decide which values match which arguments if mixed modes were allowed while providing default arguments.</p> <p>(a) A is true but R is false. (b) A is false but R is true. (c) Both A and R are false. (d) Both A and R are true but R is not the correct explanation of A. (e) Both A and R are true and R is the correct explanation of A.</p>	B
<p>Part-B (Attempt any 4 out of the 5 subparts in question no. 36 and 37)</p>		
36.	<p>Shubham Dixit of class 12 is writing a program to create a CSV file “hobby.csv” which will contain Name and hobby name for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.</p> <pre>import _____ # Line 1 def addCsvFile(Name,Hobby): # to write / add data into the CSV file f=open(' hobby.csv','_____') # Line 2 newFileWriter = csv.writer(f) newFileWriter.writerow([Name,Hobby]) f.close() #csv file reading code def readCsvFile(): # to read data from CSV file newFile = open(' hobby.csv','r') newFileReader = csv._____ (newFile) # Line 3 for row in newFileReader: print (row[0], “@”, row[1]) newFile._____ # Line 4 addCsvFile(“Pranav”, “Cricket”) addCsvFile(“Sunaina”, “Badminton”) addCsvFile(“Manish”, “Painting”)</pre>	

		readCsvFile() #Line 5	
	(i)	Name the module he should import in Line 1. (a) pickle (b) csv (c) file (d) random	B
	(ii)	In which mode, Shubham should open the file to add data into the file.(Line 2) (a) w+ (b) r (c) r+ (d) a	D
	(iii)	Fill in the blank in Line 3 to read the data from a csv file. (a) load() (b) read() (c) reader() (d) readline()	C
	(iv)	Fill in the blank in Line 4 to close the file. (a) close() (b) Close() (c) CLOSE() (d) end()	A
	(v)	Write the output he will obtain while executing Line 5. (a) Pranav Cricket Sunaina Badminton Manish Painting (b) "Pranav" "Cricket" "Sunaina" "Badminton" "Manish" "Painting" (c) Pranav @ Cricket Sunaina @ Badminton Manish @ Painting (d) "Pranav" @ "Cricket" "Sunaina" @ "Badminton" "Manish" @ "Painting"	C
37.		Subrat Ray is learning to work with Binary files in Python using a process known as Pickling/de-pickling. His teacher has given him the following incomplete code, which is creating a Binary file namely Mydata.dat and then opens, reads and displays the content of this created file. import _____ #Statement-1 sqlist=list() for k in range(5): sqlist.append(k*k) fout=open("mydata.dat", _____) #Statement-2	

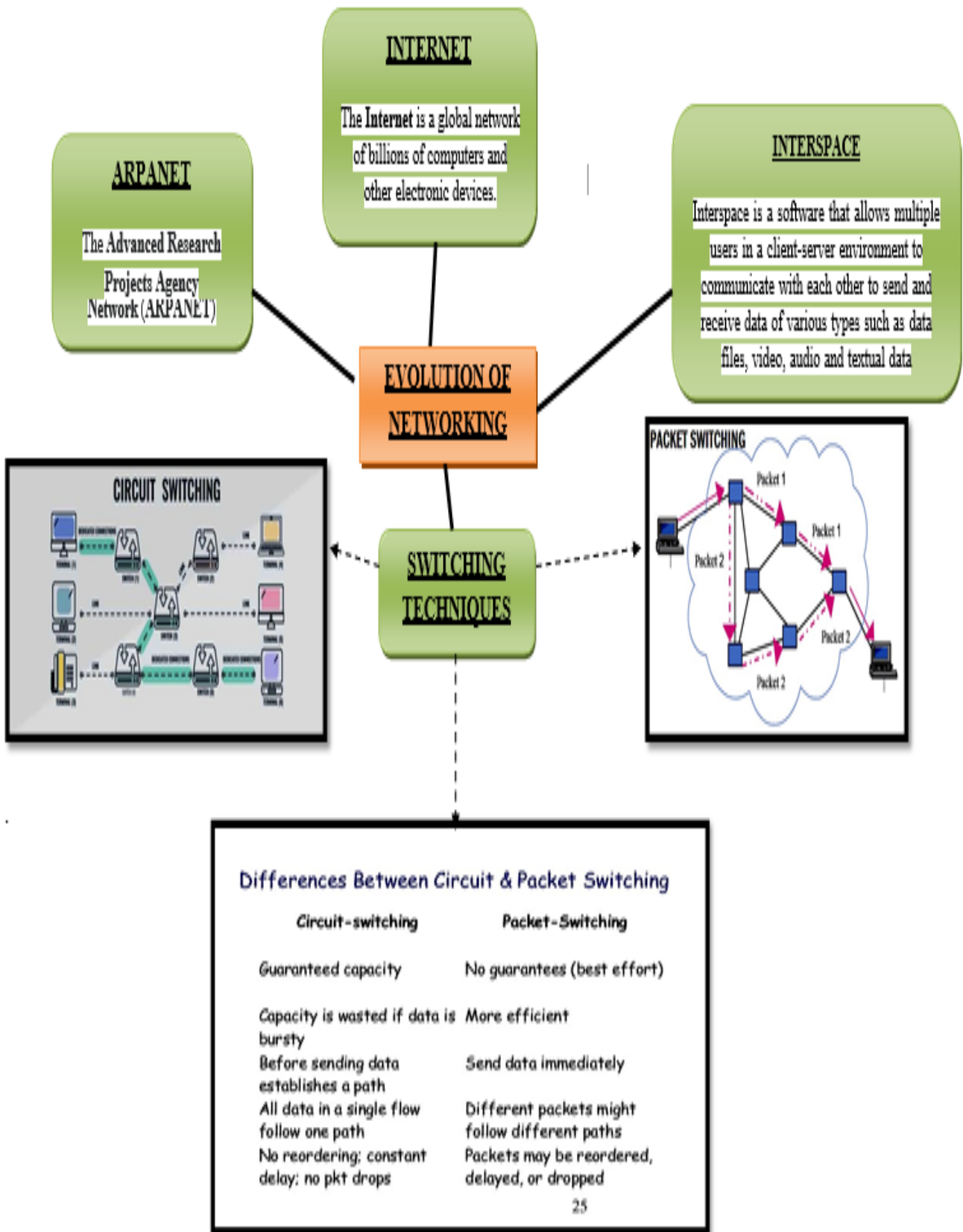
	<pre> _____ (sqlist,fout) #Statement-3 fout.close() fin=open("Mydata.dat", "rb") mylist=_____ (fin) #Statement-4 fin.close() print(mylist) #Statement-5 </pre>	
(i)	<p>Which module should be imported in Statement-1.</p> <p>(a) pickle (b) csv (c) file (d) text</p>	A
(ii)	<p>Which file mode to be passed to write data in file in Statement-2.</p> <p>(a) w+ (b) w (c) wb (d) a</p>	C
(iii)	<p>What should be written in Statement-3 to write data onto the file.</p> <p>(a) dump() (b) write() (c) pickle.dump() (d) writeline()</p>	C
(iv)	<p>Which function to be used in Statement-4 to read the data from the file.</p> <p>(a) load() (b) readline() (c) readlines() (d) pickle.load()</p>	D
(v)	<p>The output after executing Statement-5 will be –</p> <p>(a) 0 1 4 9 16 (b) 1, 4, 9, 16, 25 (c) [0, 1, 4, 9, 16] (d) [1, 4, 9, 16, 25]</p>	C

-----XXX-----

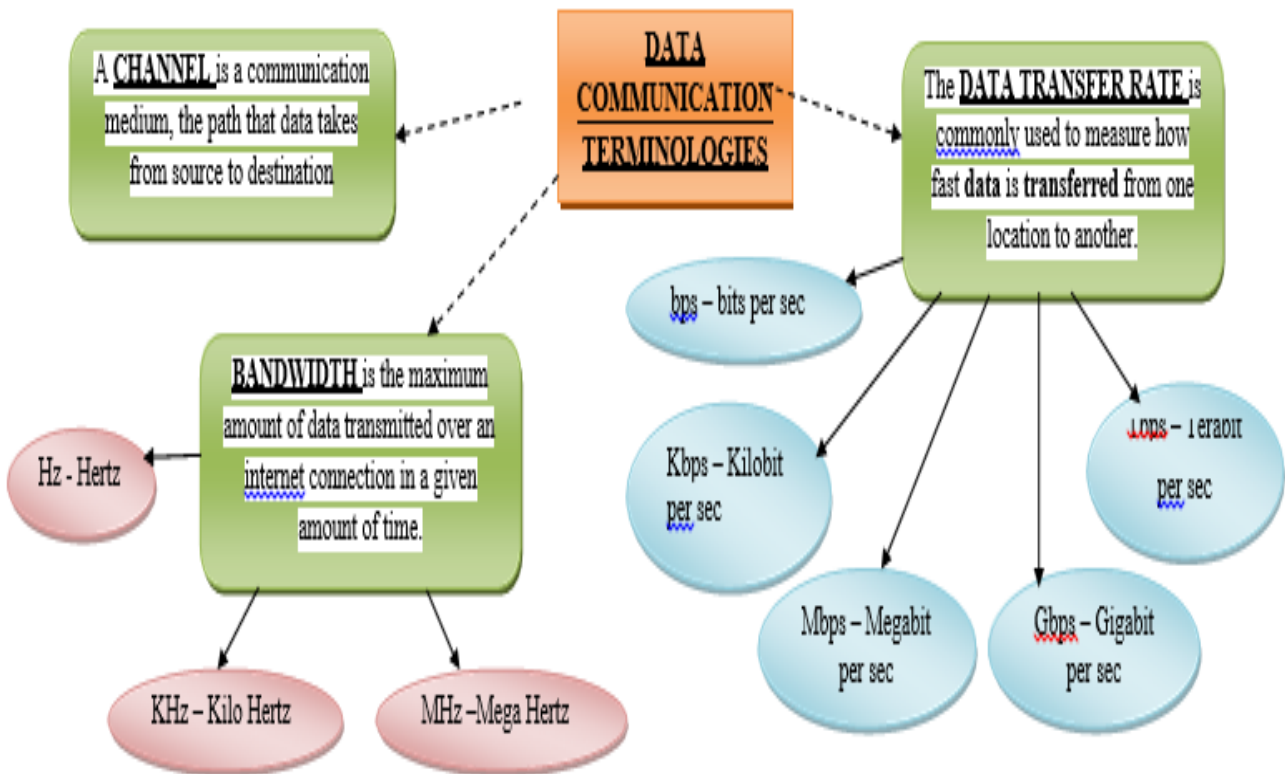
TERM-2

COMPUTER NETWORKS

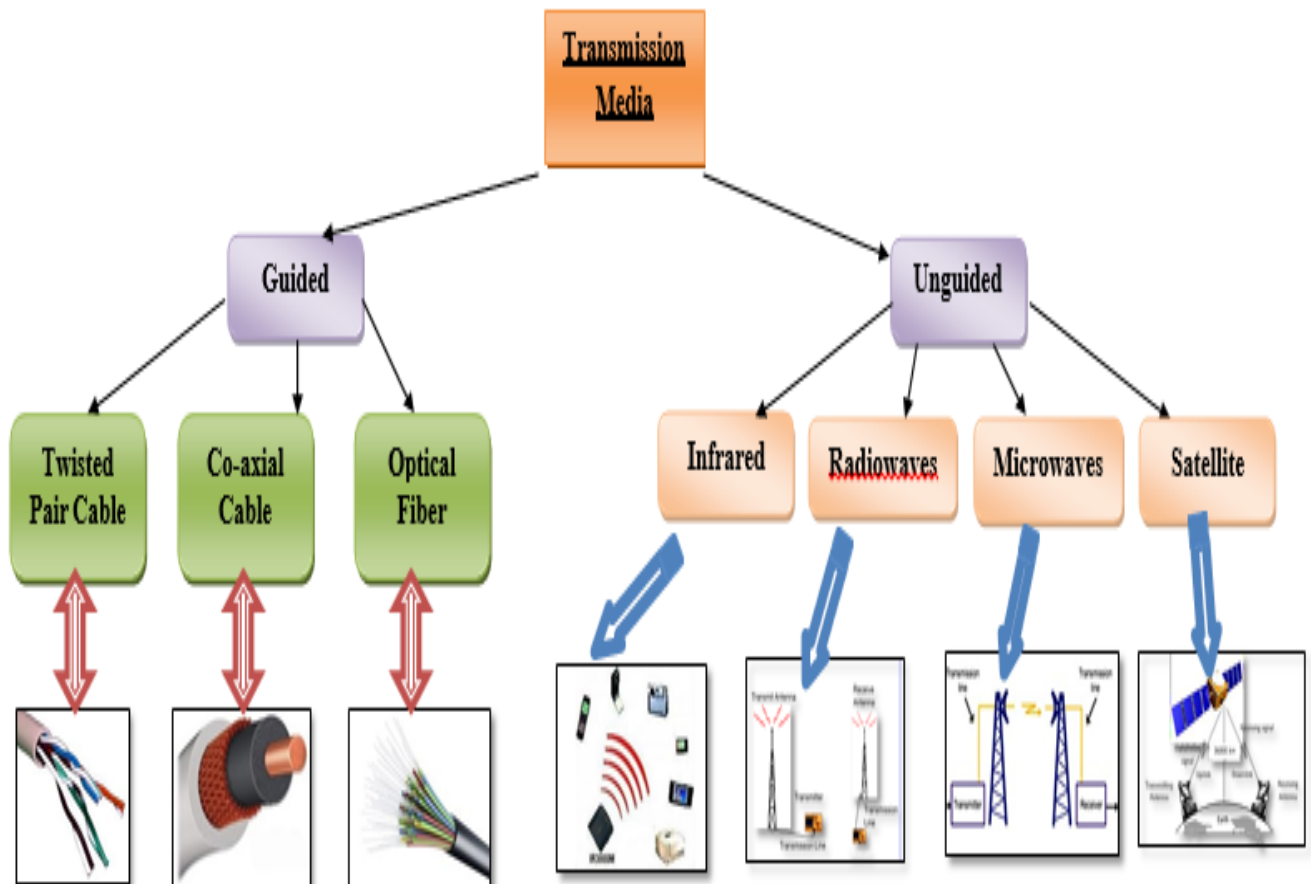
EVOLUTION OF NETWORKING



DATA COMMUNICATION TERMINOLOGIES



TRANSMISSION MEDIA



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.



Network Devices

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.

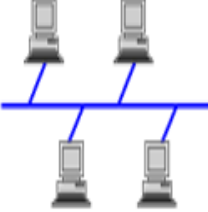


WiFi CARD – It receives the wireless signal and communicates with the wireless network, enabling you to access the Web with your laptop.



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.



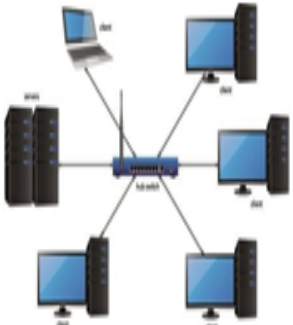
PAN – Personal Area Network



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





LAN – Local Area Network

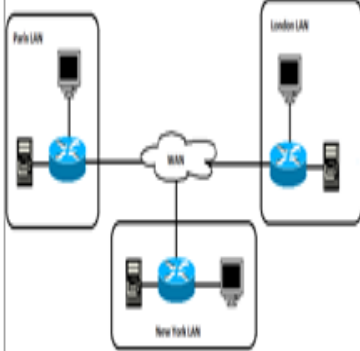


LAN Network Diagram

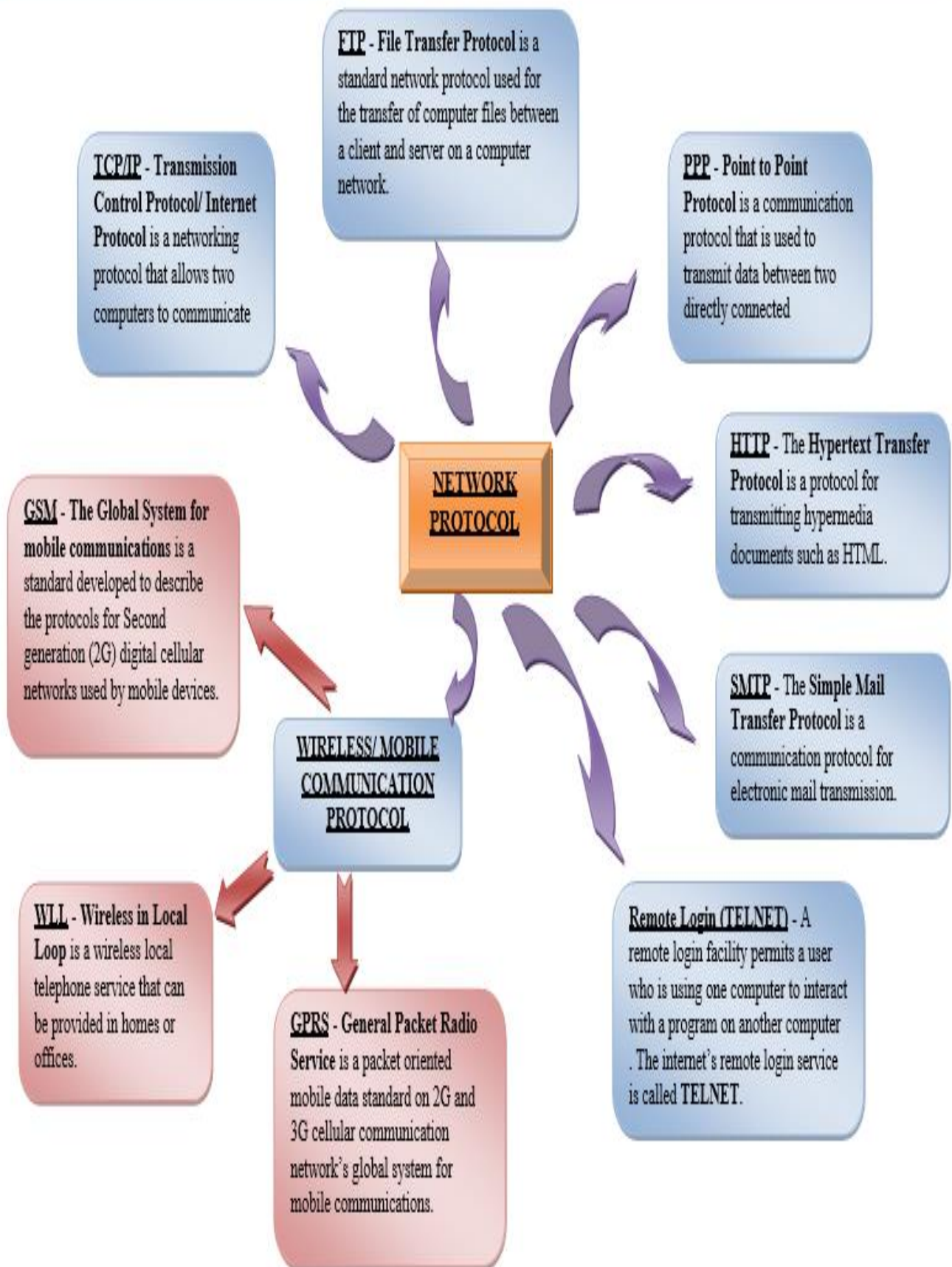
MAN – Metropolitan Area Network



WAN – Wide Area Network



NETWORK PROTOCOL

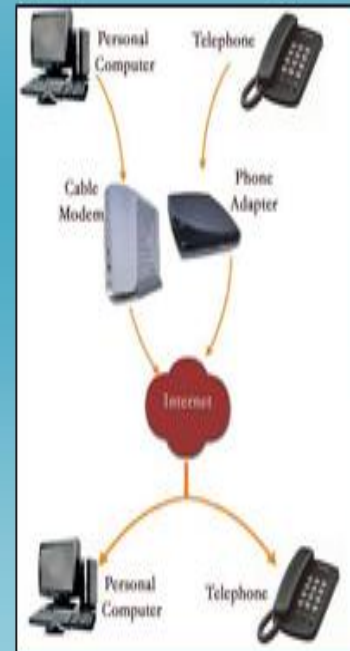


COMPARISON BETWEEN 1G, 2G, 3G, 4G AND 5G

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.



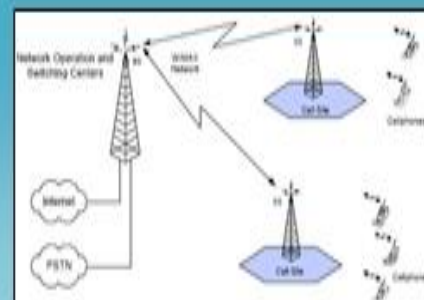
WiFi – Wireless Fidelity

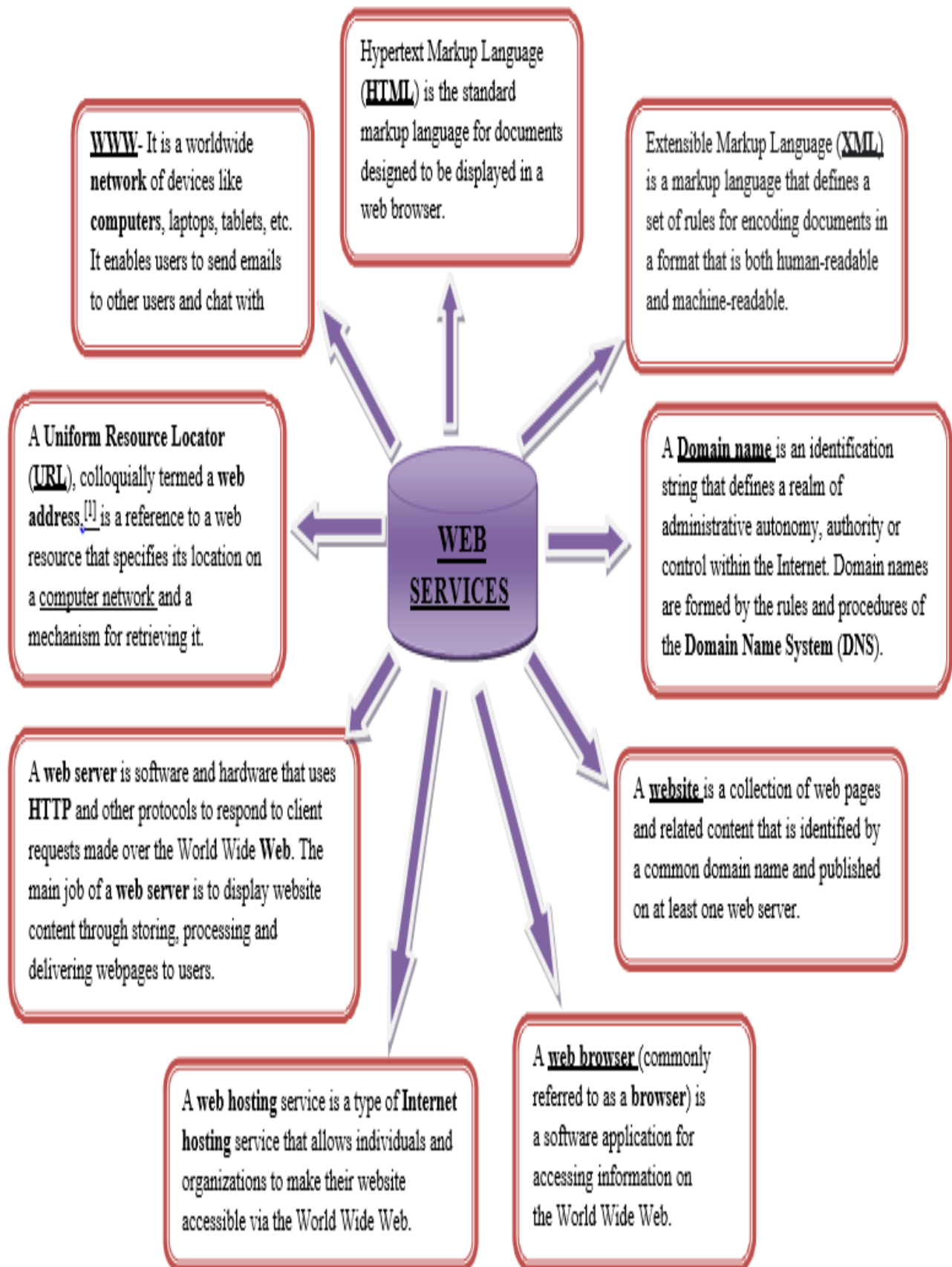
Wifi is a universal wireless networking technology that utilizes radio frequencies to transfer data.



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.





Multiple Choice Questions (MCQs)

Choose the correct answer from the given below:

1. A Computer Network:
 - A. Is a collection of hardware components and computers?
 - B. Is interconnected by communication channels
 - C. Allows sharing of resources and information
 - D. All of the above
2. What is a Firewall in computer network?
 - A. The physical boundary of network
 - B. An operating system of computer network
 - C. A system designed to prevent unauthorized access
 - D. A web browsing software
3. What is the use of Bridge in the Network?
 - A. To connect LANs
 - B. To separate LANs
 - C. To control network speed
 - D. All of the above
4. Each IP packet must contain:
 - A. Only Source address
 - B. Only Destination address
 - C. Source and Destination address
 - D. Source or Destination address
5. Which of these is not a communication channel?
 - A. Satellite
 - B. Microwave
 - C. Radio wave
 - D. Wi-Fi
6. MAN Stands for _____.
 - A. Metropolitan Area Network
 - B. Main Area Network
 - C. Metropolitan Access Network
 - D. Metro Access Network
7. Which of the following is the smallest network?
 - A. WAN
 - B. MAN
 - C. PAN
 - D. LAN
8. Which transmission media is capable of having a much higher bandwidth (data capacity)?
 - A. Coaxial
 - B. Twisted pair cable
 - C. Untwisted cable
 - D. Fiber optic
9. Which type of transmission media is the least expensive to manufacture?
 - A. Coaxial
 - B. Twisted pair cable
 - C. CAT cable
 - D. Fiber optic

10. A device that forwards data packet from one network to another is called a

- A. Bridge
- B. Router
- C. Hub
- D. Gateway

11. What is a standalone computer?

- A. A computer that is not connected to a network
- B. A computer that is being used as a server
- C. A computer that does not have any peripherals attached to it
- D. A computer that is used by only one person

12. Which of the following is the fastest media of data transfer?

- A. Co-axial Cable
- B. Untwisted Wire
- C. Telephone Lines
- D. Fiber Optic

13. Hub is a

- A. Broadcast device
- B. Unicast device
- C. Multicast device
- D. None of the above

14. Switch is a

- A. Broadcast device
- B. Unicast device
- C. Multicast device
- D. None of the above

15. The device that can operate in place of a hub is a:

- A. Switch
- B. Bridge
- C. Router
- D. Gateway

16. In computer, converting a digital signal in to an analog signal is called

- A. modulation
- B. demodulation
- C. conversion
- D. transformation

17. What is the address size of IPv6?

- A. 32 bit
- B. 64 bit
- C. 128 bit
- D. 256 bit

18. Which of these is not an example of unguided media?

- A. Optical Fibre Cable
- B. Radio wave
- C. Bluetooth
- D. Satellite

19. Two devices are in network if
- A. A process in one device is able to exchange information with a process in another device
 - B. A process is running on both devices
 - C. The processes running on different devices are of same type
 - D. None of the above.

20. Which of the following is not the Networking Devices?

- A. Gateways
- B. Linux
- C. Routers
- D. Firewalls

21. The location of a resource on the internet is given by its?

- A. Protocol
- B. URL
- C. E-mail address
- D. ICQ

22. The term HTTP stands for?

- A. Hyper terminal tracing program
- B. Hypertext tracing protocol
- C. Hypertext transfer protocol
- D. Hypertext transfer program

23. Which software prevents the external access to a system?

- A. Firewall
- B. Gateway
- C. Router
- D. Virus checker

24. Which one of the following is the most common internet protocol?

- A. HTML
- B. NetBEUI
- C. TCP/IP
- D. IPX/SPX

25. The term FTP stands for?

- A. File transfer program
- B. File transmission protocol
- C. File transfer protocol
- D. File transfer protection

26. Which one of the following is not a network topology?

- A. Star
- B. Ring
- C. Bus
- D. Peer to Peer

27. Which of the following is not an unit for data transfer rate?

- A.MBPS
- B.KBPS
- C.SBPS
- D.GBPS

28. This was the first network.

- A.CSNET
- B.NSFNET
- C.ANSNET
- D.ARPANET

29. A _____ is a data communication system within a building, plant, or campus, or between nearby buildings.

- A.MAN
- B.LAN
- C.WAN
- D. None of the above

30. _____ is a collection of many separate networks

- A. A MAN
- B. An internet
- C. A LAN
- D. None of the above

31. A _____ is a set of rules that governs data communication.

- A. forum
- B. protocol
- C. standard
- D. None of the above

32. Which of the following is required to communication between two computers?

- A. Communication hardware
- B. Communications software
- C. Protocol
- D. All of above including access to transmission medium

33. Bluetooth is an example of

- A. Wide area network
- B. Virtual private network
- C. Local area network
- D. Personal area network

34. A device which can be connected to a network without using cable is called

- A. Distributed device
- B. Centralized device
- C. Open-source device
- D. Wireless device

35. The vast network of computers that connects millions of people all over the world is called

- A. Internet
- B. Hypertext
- C. LAN

D. Web

36. MAC address is of _____

- A. 24 bits
- B. 36 bits
- C. 42 bits
- D. 48 bits

37. 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

38. Name the protocol that is used to send emails

- A.FTP
- B.SMTP
- C.HTTP
- D.TCP

39. Name the protocol that is used to receive emails

- A.POP
- B.VOIP
- C.DHCP
- D.FTP

40. Rajesh 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:

- A.LAN
- B.MAN
- C.WAN
- D.PAN

41. The topology in which all nodes are individually connected to a central connection point:

- A.Ring
- B.Bus
- C.Star
- D.Tree

42. Which of the following best describes uploading information?

- A.Sorting data on a disk drive
- B.Sending information to a host computer
- C.Receiving information from a host computer
- D.Sorting data on a hard drive

43. The term IPv4 stands for?

- A.Internet Protocol Version 4
- B.Internet Programming Version 4
- C.International Programming Version 4
- D.None of these

4. In specific, if the systems use separate protocols, which one of the following devices is used to link two systems?
- A.Repeater
 - B.Gateway
 - C.Bridge
 - D.Hub
45. DNS is the abbreviation of
- A. Dynamic Name System
 - B. Dynamic Network System
 - C. Domain Name System
 - D. Domain Network Service
46. What is the meaning of Bandwidth in Network?
- A. Transmission capacity of a communication channels
 - B. Connected Computers in the Network
 - C. Class of IP used in Network
 - D. None of Above
47. What does protocol defines?
- A. Protocol defines what data is communicated.
 - B. Protocol defines how data is communicated.
 - C. Protocol defines when data is communicated.
 - D. All of above
48. Which of the following can be Software?
- A. Routers
 - B. Firewalls
 - C. Gateway
 - D. Modems
49. The loss in signal power as light travels down the fiber is called.....
- A. Attenuation
 - B.Propagation
 - C. Scattering
 - D.Interruption
50. Which of the following TCP/IP protocols is used for transferring files form one machine to another.
- A. FTP
 - B. SNMP
 - C. SMTP
 - D. RPC
51. Which of the following protocol is used for remote terminal connection service?
- A. RARP
 - B. UDP
 - C. FTP
 - D. TELNET

52. Which of the following is considered as the unsolicited commercial email?M
- A.Virus
 - B.Malware
 - C.Spam
 - D.All of the above
53. It can be a software program or a hardware device that filters all data packets coming through the internet, a network, etc. it is known as the_____:
- A.Antivirus
 - B.Firewall
 - C.Cookies
 - D.Malware
54. The term "TCP/IP" stands for_____
- A.Transmission Contribution protocol/ internet protocol
 - B.Transmission Control Protocol/ internet protocol
 - C.Transaction Control protocol/ internet protocol
 - D.Transmission Control Protocol/ internet protocol
55. Which of the following is a type of independent malicious program that never required any host program?
- A. Trojan Horse
 - B. Worm
 - C.Trap Door
 - D.Virus
56. In order to ensure the security of the data/ information, we need to _____ the data:
- A.Encrypt
 - B.Decrypt
 - C.Delete
 - D.None of the above
57. Firewall is the type of
- A. Virus
 - B. Security threats
 - C. Worm
 - D. None of the above.
58. It allow a visited website to store its own information about a user on the user's computer:
- A.Spam
 - B.cookies
 - C.Malware
 - D.Adware
59. In which of the following switching methods, the message is divided into small packets?
- A. Message switching
 - B. Packet switching
 - C. Circuit switching
 - D. None of these

60. Which of the following switch methods creates a point-to-point physical connection between two or more computers?
- A. Message switching
 - B. Packet switching
 - C. Circuit switching
 - D. None of these
61. MAC address is also called _____.
- A. Physical address
 - B. Logical address
 - C. Source address
 - D. Destination address
62. ARPANET stands for _____.
- A. Advanced Recheck Projects Agency Internet
 - B. Advanced Recheck Projects Agency Network
 - C. Advanced Research Projects Agency Network
 - D. Advanced Research Projects Agency Internet
63. Which of the following devices is not a networking device?
- A. Hub
 - B. Switch
 - C. Bridge
 - D. None of these
64. How many pins does RJ-45 contain?
- A. Two
 - B. Four
 - C. Eight
 - D. Ten
65. NIC Stands for –
- A. Network identity card
 - B. Network interface code.
 - C. National interface card
 - D. Network interface card
66. Which of the following is not a type of guided or wired communication channel?
- A. Twisted Pair
 - B. Coaxial
 - C. Fibre Optic
 - D. WiMax
67. Which of the following is not a type of unguided or wireless communications channel?
- A. Microwave
 - B. Radiowave
 - C. Ethernet
 - D. Sattelite
68. Which of the following wireless medium consists of a parabolic antena mounted on towers?
- A. Sattelite
 - B. Radiowave
 - C. Microwave
 - D. Infrared

69. Which of the following cable consist of a solid wire core surrounded by one or more foil or wire shields?

- A.Ethernet Cables
- B.Coaxial Cables
- C.Fibre Optic Cables
- D.Power Cable

70. A collection of hyperlinked documents on the internet forms the ?

- A.World Wide Web (WWW)
- B.E-mail system
- C.Mailing list
- D.Hypertext

71. Protocols are set of rules to govern _____

- A. Communication
- B. Standard
- C. Metropolitan communication
- D. Bandwidth

72. An internet is a _____

- A. Collection of WANS
- B. Network of networks
- C. Collection of LANS
- D. Collection of identical LANS and WANS

73. Which protocol is commonly used to retrieve email from a mail server?

- A. FTP
- B. IMAP
- C. HTML
- D. TELNET

74. Which of the following allows user to view a webpage?

- A. Operating System
- B. Website
- C. Interpreter
- D. Internet Browser

75. A network router joins two _____ together?

- A. Computers
- B. Switches
- C. Networks
- D. Gateway

76. A network point that provides entrance into another network is called as _____

- A. Node
- B. Gateway
- C. Switch
- D. Router

77. TELNET used _____ protocol for data connection

- A. TCP
- B. UDP
- C. IP
- D. DHCP

78. Google Chrome is example of :

- A. Programming Language
- B. Web Server
- C. Protocol
- D. Web Browser

79. Name the transmission media best suitable for connecting to hilly areas.

- A. Co-axial Cable
- B. Twisted pair
- C. Microwave
- D. Optical fiber.

80. Rahul wants to establish computer network in his cyber café, which of the following device will be suggested by you to connect each computer in the cafe?

- A. Switch
- B. Modem
- C. Gateway
- D. Repeater

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. Name the transmission media best suitable for connecting to desert areas.

Ans: Microwave

Q4. 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.

Q5. 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

Q6. Name the transmission media suitable to establish PAN.

Ans: Bluetooth, infra-red

Q7. Name the protocol that is used to upload and download files on internet.

Ans: FTP or HTTP

Q8.Name the protocol that is used to send emails.

Ans:-SMTP

Q9. Name the protocol that is used to receive emails.

Ans:-POP

Q10. Name the transmission media best suitable for connecting to hilly areas.

Ans: Microwave / Radio wave.

Q11. Name the fastest available transmission media.

Ans: OFC (Optical Fiber Cable)

Q12. Sunil 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: Sunil 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.

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 – Hypertext 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. What is difference between star topology and bus topology of network?

Answer:

In star topology, nodes are connected to server individually whereas in bus topology all nodes are connected to server along a single length of cable.

Q3. Write two advantages of using an optical fibre cable over an ethernet cable to connect two service stations, which are 190 m away from each other.

Answer:

Low power Because signals in optical fibres degrade less, lower power transmitters can be used.

Higher data rate Due to higher bandwidth, data rate of optical fibre is more than the data rate of ethernet cable (upto 1 Gbps).

Q4. Differentiate between packet switching and message switching technique in network communication.

Answer:

Message Switching In message switching data is stored in buffer form. The message is, sent to the nearest directly connected switching node. This process continues until data is delivered to the destination computer.

Packet Switching In this form of switching data is transferring into packet form. 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.

Q5. Which type of network (out of LAN, PAN and MAN) is formed, when you connect two mobiles using bluetooth to transfer a picture file?

Answer:

When two mobiles are connected using bluetooth to transfer a picture file, a PAN(Personal Area Network) is created.

Q6. What is the difference between HTTP and FTP?

Answer:

FTP is a protocol used to upload files from a workstation to a FTP server or download files from a FTP server to a workstation.

HTTP is a protocol used to transfer files from a web server onto a browser in order to view a web page that is on the Internet.

Q7. What is the advantage of using SWITCH over HUB?

Answer:

Switch provides a dedicated line at full bandwidth between two devices but hub doesn't provide a dedicated line. Hub share the bandwidth.

Q8. What is difference between star topology and bus topology of network?

Answer:

In star topology, nodes are connected to server individually whereas in bus topology all nodes are connected to server along a single length of cable.

Q9. Define the term firewall.

Answer:

Firewall is a feature used for Network Security. In a Network there is always danger of information leaking out or leaking in. Firewall is a feature which forces all information entering or leaving the network to pass through a check to make sure that there is no unauthorized usage of the network.

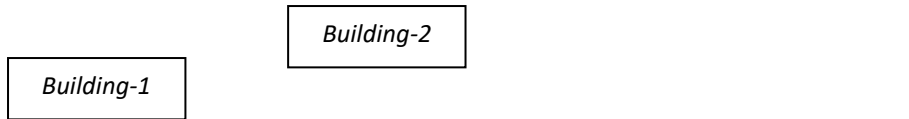
Q10.What is the importance of URL in networking?

Answer:

URL stands for Uniform Resource Locator. Each page that is created for Web browsing is assigned a URL that effectively serves as the page’s worldwide name or address. URL’s have three parts: the protocol, the DNS name of the machine on which the page is located and a local name uniquely indicating the specific page(generally the filename).

Long Answer Type Questions (5/4 marks)

Q1.PVS Computers decided to open a new office at Ernakulum, the office consist of Five Buildings andeach 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	11
4	70
5	60

Computers in each building are networked but buildings are not networked so far. The Company hasnow decided to connect building also.

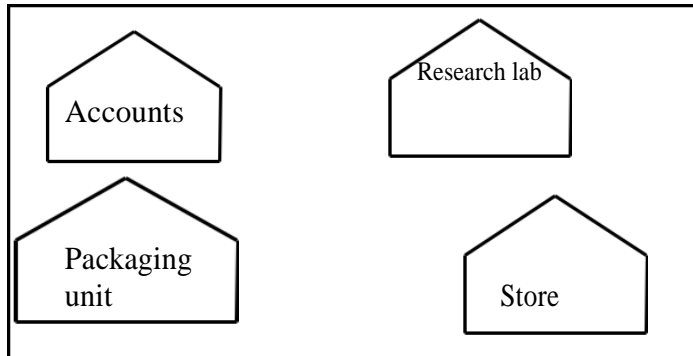
- (i) Suggest a cable layout for connecting the buildings
- (ii) Do you think anywhere Repeaters required in the campus? Why
- (iii) The company wants to link this office to their head office at Delhi
 - (a) Which type of transmission medium is appropriate for such a link?
 - (b) What type of network 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
 - (a) WAN
- (iv) Building-3 due to maximum no of Computers
- (v) Co- axial cable or fiber optics

Q2. Riana Medicos Centre has set up its new centre in Dubai. It has four buildings as shown in the diagram given below:

(4)



Distance between various buildings is as follows:

Accounts to Research Lab	55 m
Accounts to Store	150 m
Store to Packaging Unit	160 m
Packaging Unit to Research Lab	60 m
Accounts to Packaging Unit	125 m
Store to Research Lab	180 m

Number of computers:

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer to the following queries:

- (i) Suggest the type of network established between the buildings.
- (ii) Suggest the most suitable place (i.e., building) to house the server of this organization.
- (iii) Suggest the placement of the following devices with justification: Repeater, Switch
- (iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.

Ans. (i) LAN (Local Area Network)

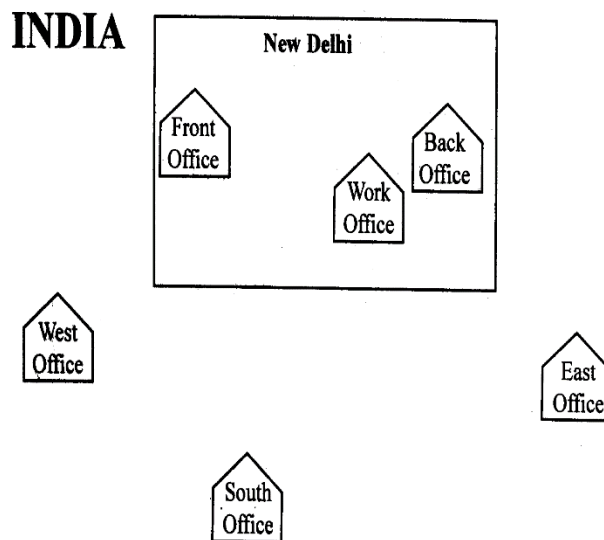
(ii) Research Lab as it has the maximum number of computers.

(iii) (a) Repeater: It should be placed between Accounts and Packaging Unit, Accounts to Research Lab, Store to Research Lab and Accounts to Packaging Unit.

(b) Switch should be placed in each of the buildings for better traffic management.

(iv) Firewall.

Q3. “Bhartiya Connectivity Association” is planning to spread their offices 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” and “Work Office”. The company has three more regional offices as “South Office”, “East Office” and “West Office” located in other three major cities of India. A rough layout of the same is as follows:



Approximate distance between these offices as per network survey team is as follows:

Place From	Place To	Distance
BackOffice	Front Office	10KM
Back Office	Work Office	70 Meter
Back Office	East Office	1291 KM
BackOffice	West Office	790 KM
Back Office	South Office	1952 KM

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Back Office	100
Front Office	20
Work Office	50
East Office	50
West Office	50
South Office	50

(i) Suggest network type (out of LAN, MAN, WAN) for connecting each of the following set of their offices:

- Back Office and Work Office
- Back Office and South Office

(ii) Which device you will suggest to be procured by the company for connecting all the computers with in each of their offices out of the following devices?

- Switch/Hub
- Modem
- Telephone

(iii) Which of the following communication medium, you will suggest to be procured by the company for connecting their local offices in New Delhi for very effective and fast communication?

- Telephone Cable
- Optical Fiber
- Ethernet Cable

(iv) Suggest a cable/wiring layout for connecting the company's local offices located in New Delhi. Also, suggest an effective method/technology for connecting the company's regional offices- "East Office", "West Office" and "South Office" with offices located in New Delhi.

Answer:

- (i) **Network type:** Head Office and Tech: LAN
Head Office and Coimbatore Office: WAN

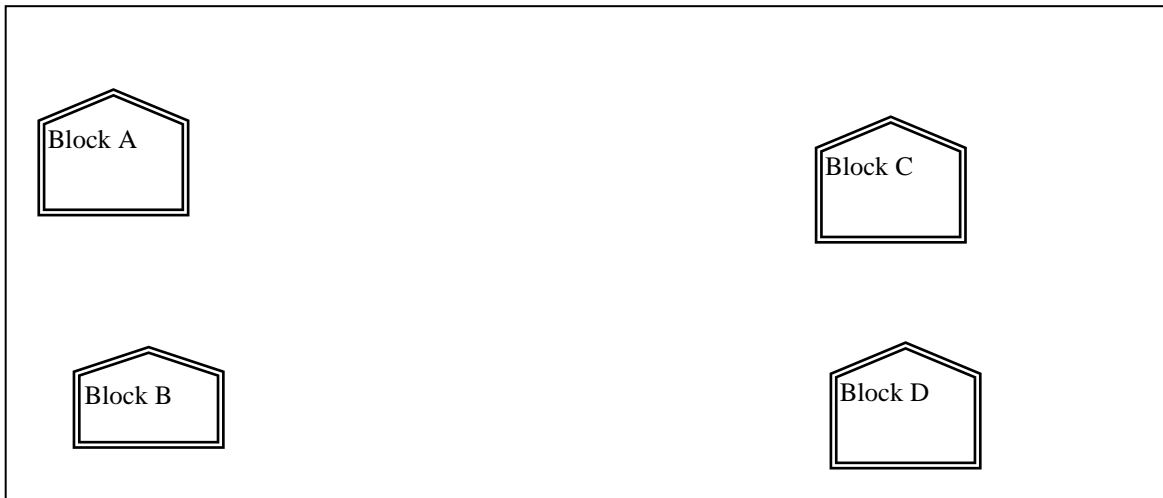
(ii) Switch/Hub

(iii) Optical fiber

(iv) (a) Optical Fiber/Star Topology

(b) Wireless

Q4. Knowledge Supplement Organization has set up its new center at Mangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below:



Center to center distances between various blocks

Block A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

Number of Computers

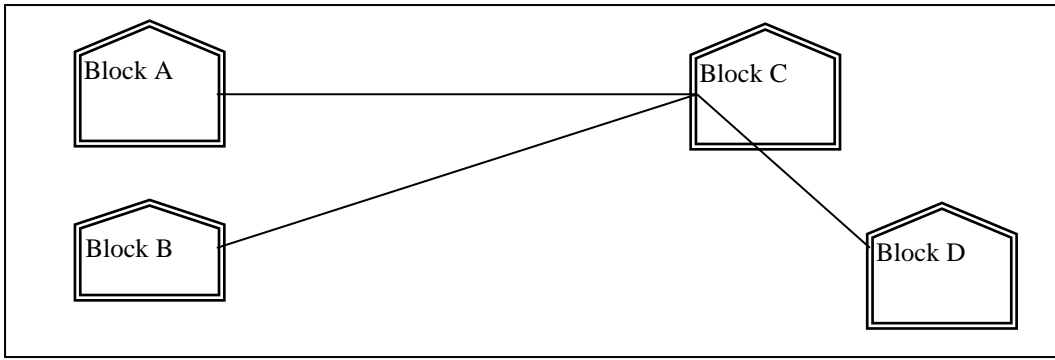
Block A	25
Block B	50
Block C	125
Block D	10

- a) Suggest a cable layout of connections between the blocks.
- b) Suggest the most suitable block to house the server of this organisation with a suitable reason
- c) Suggest the placement of the following devices with justification
 - (i) Repeater
 - (ii) Hub/Switch
- d) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed?

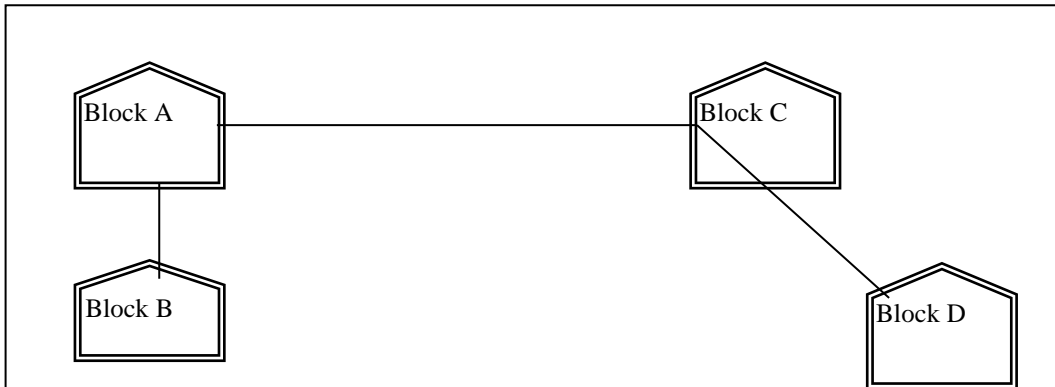
Answer:

(a) Any of the following option

Layout Option 1:



Layout Option 2: Since the distance between Block A and Block B is quite short



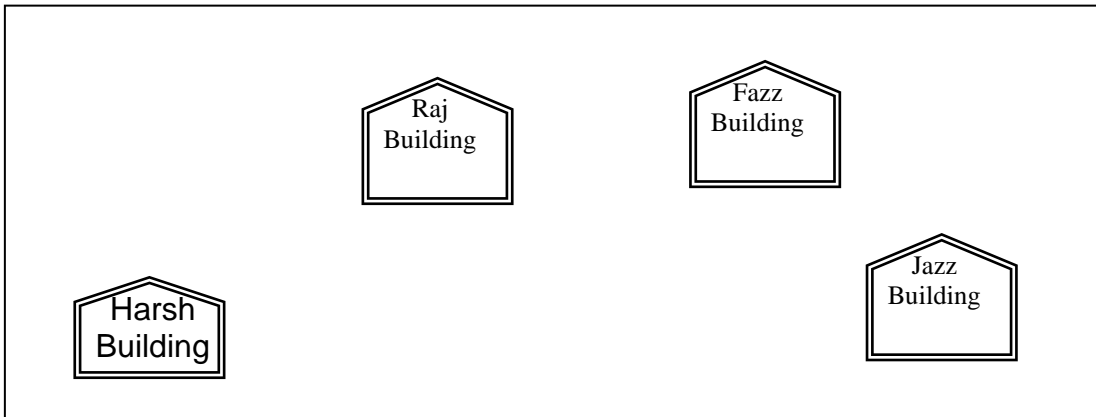
(b) The most suitable place / block to house the server of this organization would be Block C, as this block contains the maximum number of computers, thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network.

(c) For Layout 1, since the cabling distance between Blocks A and C, and that between B and C are quite large, so a repeater each, would ideally be needed along their path to avoid loss of signals during the course of data flow in these routes

For layout 2, since the distance between Blocks A and C is large so a repeater would ideally be placed in between this path

(d) The most economical way to connect it with a reasonable high speed would be to use radio wave transmission, as they are easy to install, can travel long distances, and penetrate buildings easily, so they are widely used for communication, both indoors and outdoors.

Q5. 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:



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:

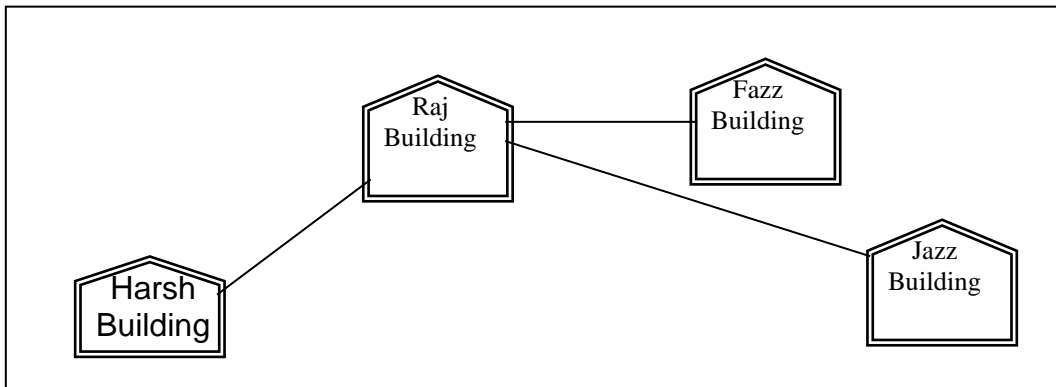
Harsh Building	15
Raj Building	150
Fazz Building	15
Jazz Bulding	25

- a) Suggest a cable layout of connections between the buildings.
- b) Suggest the most suitable place (i.e. building) to house the server of this organization with a suitable reason.
- c) Suggest the placement of the following devices with justification:
 - (i) Internet Connecting Device/Modem
 - (ii) Switch
- d) The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.

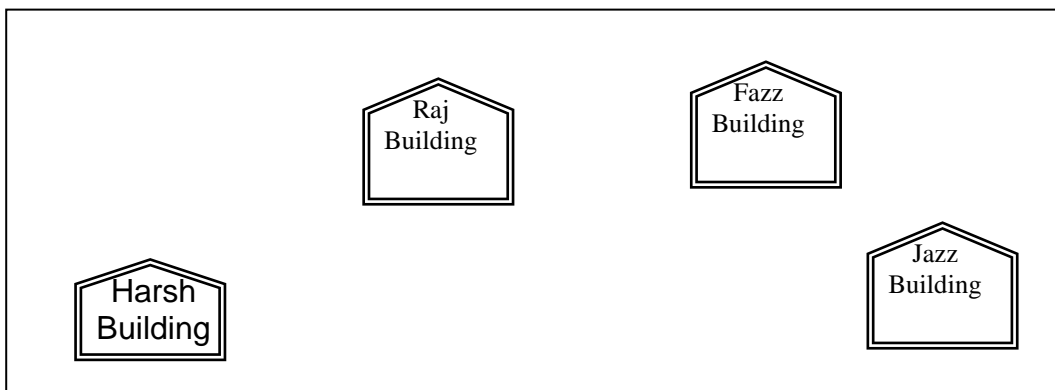
Answer:

a)

Layout 1:



Layout 2: Since the distance between Fazz Building and Jazz Building is quite short



b) the most suitable place (i.e. building) to house the server is Raj Building, as this block contains the maximum number of computers, thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network.

c) (i) Raj Building

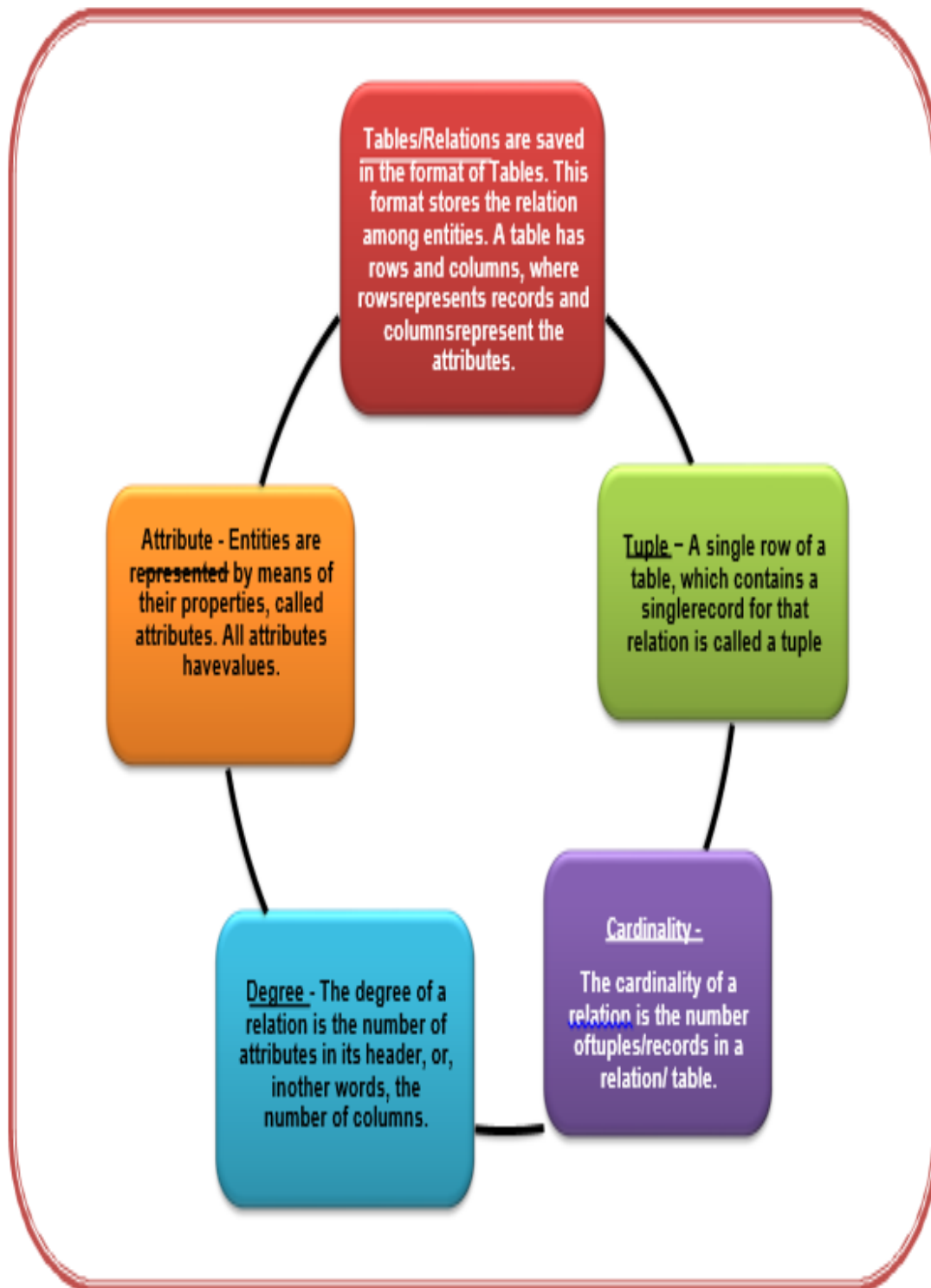
(ii) In both the layouts, a hub/switch each would be needed in all the buildings, to interconnect the group of cables from the different computers in each block

d) The type of network that shall be formed to link the sale counters situated in various parts of the same city would be a MAN, because MAN (Metropolitan Area Networks) are the networks that link computer facilities within a city.

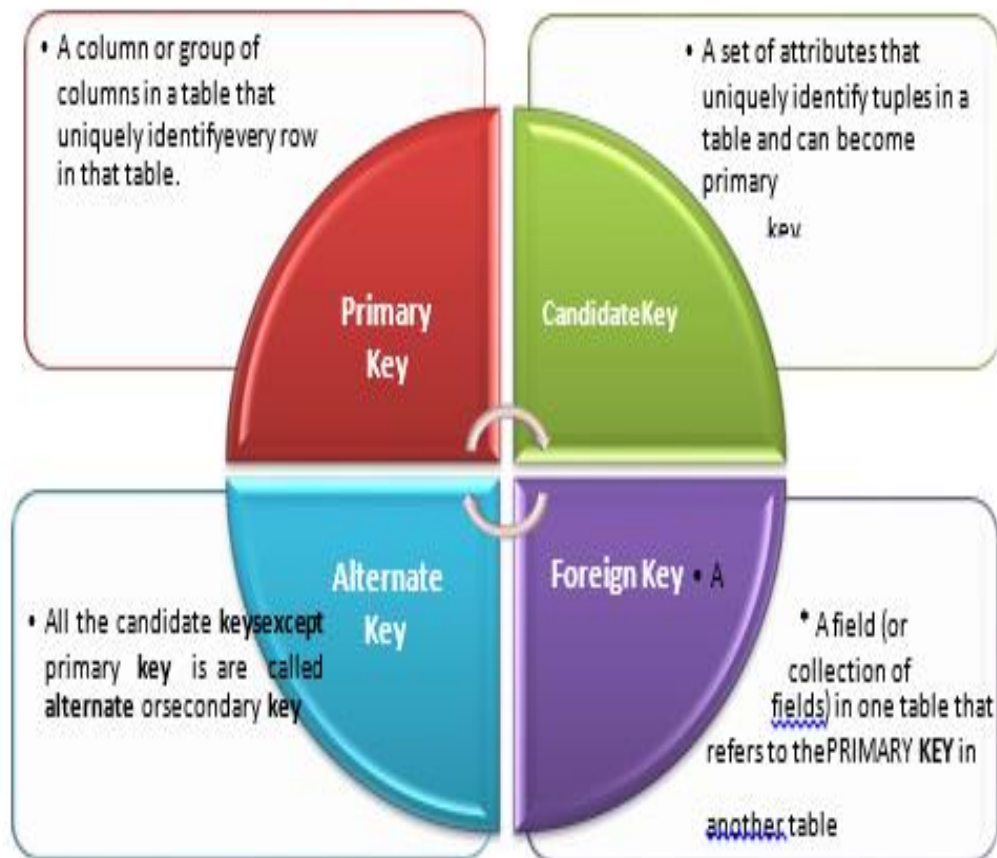
ANSWER KEY (MCQs):

QU S	1	2	3	4	5	6	7	8	9	1 0
AN S	D	C	A	C	D	A	C	D	B	B
QU S	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0
AN S	A	D	A	B	A	A	C	A	A	B
QU S	2 1	2 2	2 3	2 4	2 5	2 6	2 7	2 8	2 9	3 0
AN S	B	C	A	C	C	D	C	D	B	B
QU S	3 1	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 9	4 0
AN S	B	D	D	D	A	D	C	B	A	D
QU S	4 1	4 2	4 3	4 4	4 5	4 6	4 7	4 8	4 9	5 0
AN S	C	B	A	B	C	A	D	B	A	A
QU S	5 1	5 2	5 3	5 4	5 5	5 6	5 7	5 8	5 9	6 0
AN S	D	C	B	B	B	A	D	B	B	C
QU S	6 1	6 2	6 3	6 4	6 5	6 6	6 7	6 8	6 9	7 0
AN S	A	C	D	C	C	D	C	C	B	A
QU S	7 1	7 2	7 3	7 4	7 5	7 6	7 7	7 8	7 9	8 0
AN S	A	B	B	D	C	B	A	D	C	A

Database Management

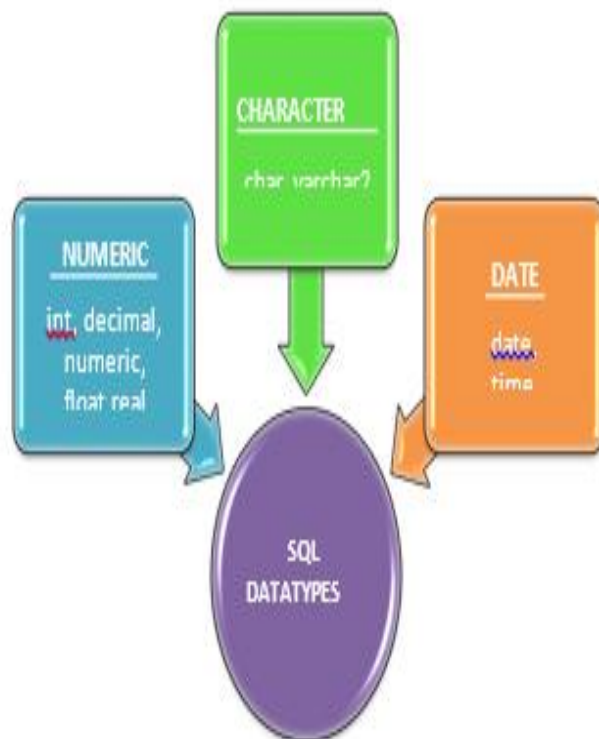


KEYS

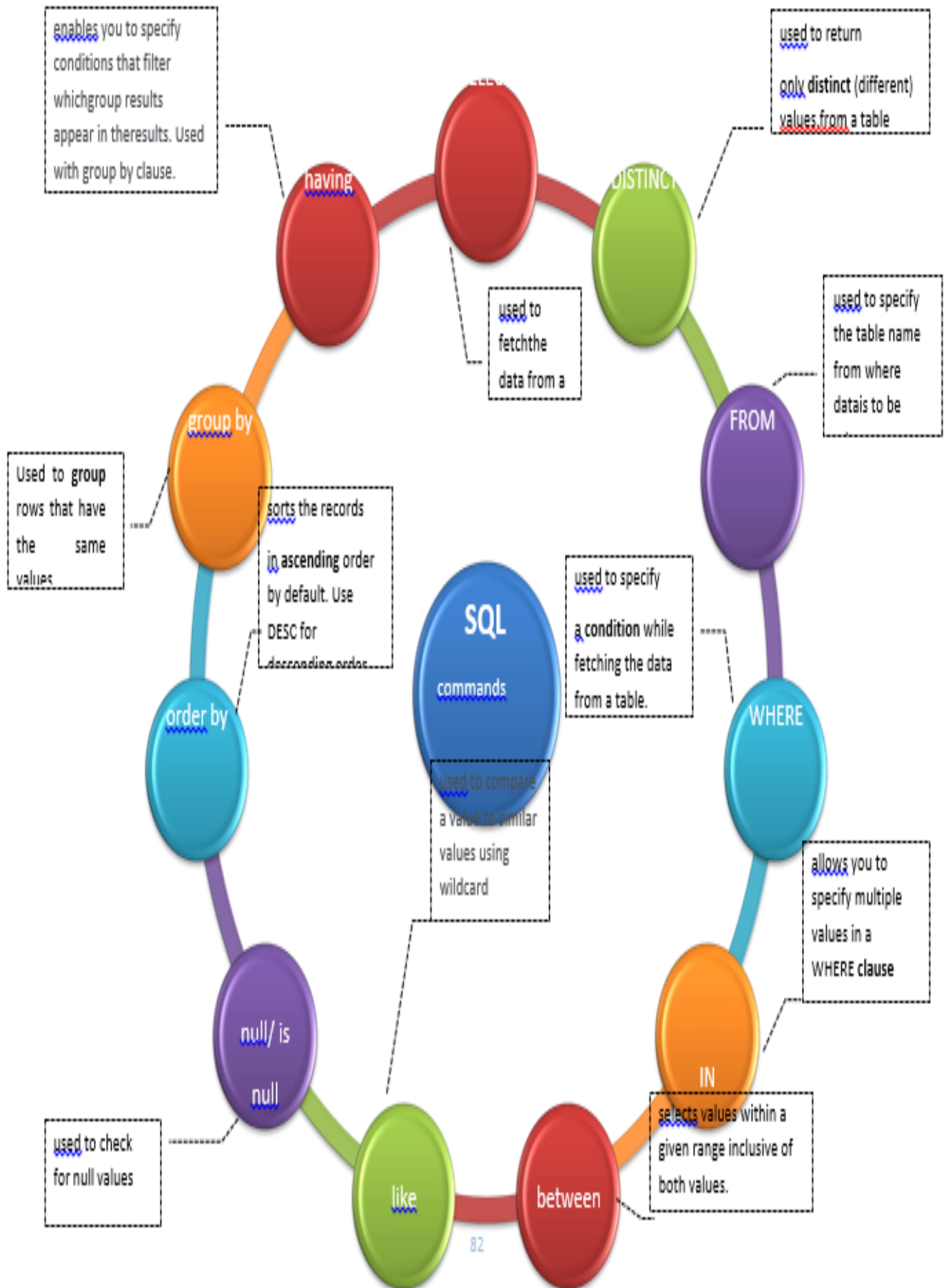


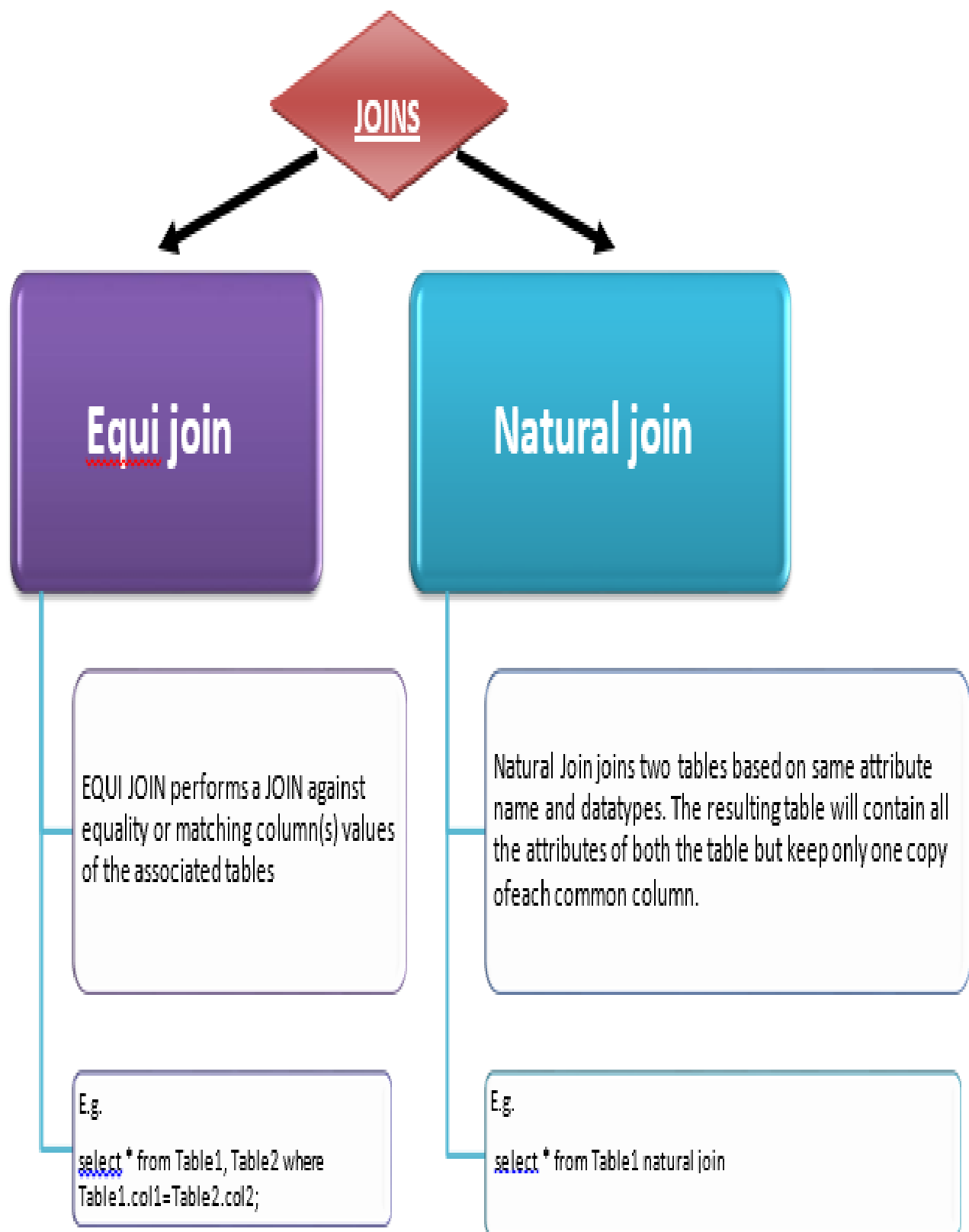
A data definition language (DDL) is a language used to define data structures and modify data.

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





OBJECTIVE TYPE QUESTIONS /MULTIPLE CHOICE QUESTIONS

1. What is the full form of SQL?
(a) Structured Query Language (b) Structured Query List
(c) Simple Query Language (d) Data Derivation Language
2. What does DML stand for?
(a) Different Mode Level (b) Data Model Language
(c) Data Mode Lane (d) Data Manipulation Language
3. The _____ clause of SELECT query allows us to select only those rows in the results that satisfy a specified condition.
(a) Where (b) from (c) having (d) like
4. Which of the following function is used to FIND the largest value from the given data in MYSQL?
(a) MAX () (b) MAXIMUM () (c) LARGEST () (d) BIG ()
5. The data types CHAR (n) and VARCHAR (n) are used to create _____ and _____ types of string/text fields in a database.
(a) Fixed, equal (b) Equal, variable (c) Fixed, variable (d) Variable, equal
6. The term _____ is use to refer to a record in a table.
(a) Attribute (b) Tuple (c) Row (d) Instance
7. Which command is used for cleaning up the environment (sql with Python)?
(a) my.close (b) is.close (c) con.close (d) mycon.close
8. A relational database consists of a collection of
(a) Tables (b) Fields (c) Records (d) Keys
9. What is the full form of DDL?
(a) Dynamic Data Language (b) Detailed Data Language
(c) Data Definition Language (d) Data Derivation Language
10. A(n) _____ in a table represents a logical relationship among a set of values.
(a) Attribute (b) Key (c) Tuple (d) Entry
11. Name the method which is used for displaying only one resultset.
(a) fetchmany (b) fetchno (c) fetchall (d) fetchone
12. Name the host name used for signing in the database.
(a) localhost (b) localpost (c) localcost (d) none of the above
13. A relational database consists of a collection of
(a) Tuples (b) Attributes (c) Relations (d) Keys
14. Which is the subset of SQL commands used to manipulate database structure including tables?
(a) Data Definition Language (DDL) (b) Data Manipulation Language (DML)
(c) Both (a) and (b) (d) None
15. The term _____ is used to refer to a field in a table.
(a) Attribute (b) Tuple (c) Row (d) Instance

16. Consider the following table namely employee:

Employee_id	Name	Salary
5001	Amit	60000
5009	Sumit	45000
5020	Arpit	70000

Which of the names will not be displayed by the below given query?

SELECT name FROM employee WHERE employee_id>5009;

- (a) Amit, Sumit (b) Sumit, Arpit (c) Arpit (d) Amit, Arpit

17. Consider the following query

SELECT name FROM stu WHERE subject LIKE '_____ Computer Science';

Which one of the following has to be added into the blank space to select the subject which has Computer Science as its ending string?

- (a) \$ (b) _ (c) || (d) %

18. Consider following SQL statement. What type of statement is this?

SELECT * FROM employee

- (a) DML (b) DDL (c) DCL (d) Integrity constraint

19. Which of the following function is not an aggregate function?

- (a) Round() (b) Sum() (c) Count () (d) Avg ()

20. Pick the correct username used for logging in database (sql with Python).

- (a) root (b) local (c) directory (d) host

21. Aggregate functions can be used in the select list or the _____ clause of a select statement. They cannot be used in a _____ clause.

- (a) Where, having (b) Having, where (c) Group by, having (d) Group by, where

22. Select correct SQL query from below to find the temperature in increasing order of all cities.

- (a) SELECT city FROM weather ORDER BY temperature;
(b) SELECT city, temperature FROM weather;
(c) SELECT city, temperature FROM weather ORDER BY temperature;
(d) SELECT city, temperature FROM weather ORDER BY city;

23. In SQL, which command is used to SELECT only one copy of each set of duplicable rows

- (a) SELECT DISTINCT (b) SELECT UNIQUE
(c) SELECT DIFFERENT (d) All of the above

24. Which of the following is a SQL aggregate function?

- (a) LEFT (b) AVG (c) JOIN (d) LEN

25. The command used for modifying the records is:

- (a) update (b) add (c) updateall (d) none of the above

26. An attribute in a relation is foreign key if it is the _____ key in any other relation.

- (a) Candidate (b) Primary (c) Super (d) Sub

27. Which of the following sublanguages of SQL is used to query information from the data base and to insert tuples into, delete tuples from, and modify tuples in the database?
- (a) DML (Data Manipulation Language)
 - (b) DDL (Data Definition Language)
 - (c) Query
 - (d) Relational Schema
28. Which operator performs pattern matching?
- (a) BETWEEN operator
 - (b) LIKE operator
 - (c) EXISTS operator
 - (d) None of these
29. Which of the following is not a legal method for fetching records from database from within Python?
- (a) fetchone()
 - (b) fetchtwo()
 - (c) fetchall()
 - (d) fetchmany()
30. By default, ORDER BY clause lists the results in _____ order.
- (a) Descending
 - (b) Any
 - (c) Same
 - (d) Ascending
31. Which of the following attributes can be considered as a choice for primary key?
- (a) Name
 - (b) Street
 - (c) Roll No
 - (d) Subject
32. In the given query which keyword has to be inserted?
- INSERT INTO employee_____ (1002, "Kausar", 2000);
- (a) Table
 - (b) Values
 - (c) Relation
 - (d) Field
33. What SQL statement do we use to display the record of all students whose last name contains 5 letters ending with "A"?
- (a) SELECT * FROM STUDENTS WHERE LNAME LIKE '____A';
 - (b) SELECT * FROM STUDENTS WHERE LNAME LIKE '_____';
 - (c) SELECT * FROM STUDENTS WHERE LNAME LIKE '????A';
 - (d) SELECT * FROM STUDENTS WHERE LNAME LIKE '*A';
34. Consider the table with structure as:
- Student (ID, name, dept name, tot_cred)
- In the above table, which attribute will form the primary key?
- (a) Name
 - (b) Dept
 - (c) total_credits
 - (d) ID
35. Which of the following will you use in the following query to display the unique values of the column dept_name?
- SELECT _____ dept_name FROM Company;
- (a) All
 - (b) From
 - (c) Distinct
 - (d) Name
36. Consider the following query:
- SELECT name, instructor name, course_____id
FROM instructor;
- To display the field heading course with a different heading as id, which keyword must be used here to rename the field name?
- (a) From
 - (b) Rename
 - (c) As
 - (d) Join
37. With SQL, how do you select all the records from a table named "Students" where the value of the column "FirstName" ends with an "a"?
- (a) SELECT * FROM Students WHERE FirstName = 'a'
 - (b) SELECT * FROM Students WHERE FirstName LIKE 'a%'
 - (c) SELECT * FROM Students WHERE FirstName LIKE '%a'
 - (d) SELECT * FROM Students WHERE FirstName = '%a%'

38. The HAVING clause does which of the following?
 (a) Acts EXACTLY like WHERE clause
 (b) Acts like a WHERE clause but is used for columns rather than groups.
 (c) Acts like a WHERE clause but is used form groups rather than rows.
 (d) Acts like a WHERE clause but is used for rows rather than columns.
39. Which clause is used with “aggregate functions”?
 (a) GROUP BY (b) SELECT (c) WHERE (d) Both (a) and (b)
40. To open a connector to Mysql database, which statement is used to connect with mysql?
 (a) Connector (b) Connect (c) password (d) username
41. If column “Marks” contains the data set {25, 35, 25, 35, 38}, what will be the output after the execution of the given query?
 SELECT MARKS (DISTINCT) FROM STUDENTS;
 (a) 25. 35. 25. 35. 38 (b) 25, 25, 35, 35 (c) 25, 35, 38 (d) 25, 25, 35, 35
42. Which connector is used for linking the database with Python code?
 (a) MySQL-connector (b) YesSQL: connector
 (c) PostSQL: connector (d) None of the above
43. If column “Salary” contains the data set {1000, 15000, 25000, 10000, 15000}, what will be the output after the execution of the given query?
 SELECT SUM(DISTINCT SALARY) FROM EMPLOYEE;
 (a)75000 (b) 25000 (c) 10000 (d) 50000
44. SQL applies conditions on the groups through _____ clause after groups have been formed,
 (a) Group by (b) With (c) Where (d) Having
45. To execute all the rows from the result set, which method is used?
 (a) fetchall (b) fetchone (c) fetchmany (d) none of the above
46. What is the meaning of “HAVING” clause is SELECT query?
 (a) To filter out the summary groups (b) To filter out the column groups
 (c) To filter out the row and column values (d) None of the mentioned
47. Which of the following queries contains an error?
 (a) Select * from emp where empid = 10003;
 (b) Select empid from emp where empid=10006;
 (c) Select empid from emp;
 (d) Select empid where empid=1009 and lastname='GUPTA';
48. Which operator tests column for the absence of data (i.e., NULL value) ?
 (a) EXISTS operator (b) NOT operator
 (c) IS operator (d) None of these
49. Consider the following query:
 SELECT name FROM class WHERE subject_____NULL;
 Which comparison operator may be used to fill the blank space in above query?
 (a) = (b) LIKE (c) IS/IS Not (d) if

50. Which SQL function is used to count the number of rows in a SQL query?
 (a) COUNT () (b) NUMBER () (c) SUM () (d) COUNT (*)
51. With SQL, how can you return the number of not null record in the Project field of “Students” table?
 (a) SELECT COUNT (Project) FROM Students
 (b) SELECT COLUMNS (Project) FROM Students
 (c) SELECT COLUMNS (*) FROM Students
 (d) SELECT COUNT (*) FROM Students
52. Which of the following is not an aggregate function?
 (a) Avg (b) Sum (c) With (d) Min
53. All aggregate functions except _____ ignore null values in their input collection.
 (a) Count (attribute) (b) Count (*) (c) Avg (d) Sum
54. Which of the following group functions ignore NULL values?
 (a) MAX (b) COUNT (c) SUM (d) All of the above
55. What will be the order of the data being sorted after the execution of given query
 SELECT * FROM STUDENT ORDER BY ROLL_NO;
 (a) Custom Sort (b) Descending (c) Ascending (d) None of the above
56. Where and Having clauses can be used interchangeably in SELECT queries?
 (a) True (b) False (c) Only in views (d) With order by
57. A _____ is property of the entire relation, which ensures through its value that each tuple is unique in a relation.
 (a) Rows (b) Key (c) Attribute (d) fields
58. The operation whose result contains all pairs of tuples from the two relations, regardless of whether their attribute values match.
 (a) Join (b) Cartesian product (c) Intersection (d) Set difference
59. Consider following SQL statement. What type of statement is this?
 CREATE TABLE employee (name VARCHAR, id INTEGER)
 (a) DML (b) DDL (c) DCL (d) Integrity constraint
60. The pattern ‘- - - ’ matches any string of _____ three character. ‘- - - %’ matches any string of _____ three characters.
 (a) Atleast, Exactly (b) Exactly, Atleast (c) Atleast, All (d) All, Exactly

VERY SHORT ANSWER QUESTIONS (1 MARKS EACH)

- Q1. Name the command/clause which is used to display the records in ascending or descending order.
- Q2. Give example of any two DML commands.
- Q3. What is the purpose of SQL?
- Q4. What is primary key?
- Q5. Which command is used to display a list of already existing tables?
- Q6. Which command is used to change the structure of table?
- Q7. Which command is used to change the data of the table?
- Q8. Which command is used to delete data of the table?
- Q9. Which command delete the structure of table?
- Q10. Identify the DDL and DML commands from the following:
Create, Delete
- Q11. Which clause is used with aggregate functions? (Group by/ Where)
- Q12. What do you mean by candidate key?
- Q13. Correct the error in the following query.
Select * from RECORD where Rname = %math%;
- Q14. What is max () function in SQL?
- Q15. What do you mean by degree and cardinality of table?
- Q16. Expand DDL and DML
- Q17. Which command is used to increase the salary of workers in table salary? (Update / Alter)
- Q18. Name the command used to see the structure of table.
- Q19. Which aggregate function is used to find sum of column in a table?
- Q20. What is the difference between having and where clause?
- Q21. Name an aggregate function in SQL which return the average of numeric values.
- Q22. What is the use of “like” in SQL?
- Q23. Correct the following statement:
Delete table data;
- Q24. What do you mean by aggregate function?
- Q25. Write two wild card characters which are used with like operator?
- Q26. Duplication of record is called _____
- Q27. What is the difference between char and varchar?

=====**=====*

Fill in the blanks

1. SQL stands for _____ Query Language.
2. A connectivity package such as _____ must be imported before writing database connectivity Python code.
3. The SQL keyword _____ is used to specify the table(s) that contains the data to be retrieved.
4. To remove duplicate rows from the result of a query, specify the SQL qualifier _____ in select list.
5. To obtain all columns, use a(n) _____ instead of listing all the column names in the select list.
6. The SQL _____ clause contains the condition that specifies which rows are to be selected.
7. To sort the rows of the result table, the _____ clause is specified.
8. Columns can be sorted in descending sequence by using the SQL keyword _____
9. When two conditions must both be true for the rows to be selected, the conditions are separated by the SQL keyword _____
10. To refer to a set of values needed for a condition, we can use the SQL operation _____
11. To exclude one or more values (a list of values) using a condition, the SQL keyword _____ should be used.
12. The SQL keyword _____ is used in SQL expressions to select based on patterns
13. The SQL built-in function _____ totals values in numeric columns.
14. The SQL built-in function _____ obtains the largest value in a numeric column.
15. The SQL built-in function _____ obtains the smallest value in a numeric column.
16. The SQL built-in function _____ computes the number of rows in a table.
17. The SELECT clause _____ is used to collect those rows that have the same value in a specified column.
18. _____ method returns the result set in the form of tuples containing the records or rows returned by the sql table.
19. A session between the application program and the database is called _____
20. A _____ query is used to check if data has been added to the table or not.
21. The _____ function works with data of multiple rows at a time and returns aggregated value.
22. The _____ clause lets you arrange the result set in the order of single column, multiple column and custom sort order too.
23. To specify filtering condition for groups, the _____ clause is used in MYSQL.
24. By default, the ORDER BY clauses sorts the result set in the _____ order.
25. To sort the result set in descending order, _____ keyword is used with ORDER BY.

True/False Questions

1. The condition in a WHERE clause in a SELECT query can refer to only one value
2. SQL provides the AS keyword, which can be used to assign meaningful column names to the results of queries using the SQL built-in functions.
3. The rows of the result relation produced by a SELECT statement can be sorted but only by one column.
4. SQL is a programming language.
5. SELECT DISTINCT is used if a user wishes to see duplicate columns in a query.
6. The HAVING clause acts like a WHERE clause, but it identifies groups that meet a criterion, rather than rows.
7. The qualifier DISTINCT must be used in an SQL statement when we want to Eliminate duplicate rows.
8. DISTINCT and its counterpart, ALL, can be used more than once in a SELECT statement.
9. DISTINCT and its counterpart, ALL, can be used together on single field in a SELECT statement.
10. SUM, AVG, MIN and MAX can only be used with numeric columns.

11. The SQL statement: `SELECT salary + Comm AS Total FROM Emp;` adds two fields salary and comm from each row together and lists the results in a column named Total.
12. `ORDER BY` can be combined with the `SELECT` statement.
13. Data manipulation language (DML) commands are used to define a database, including creating, altering, and dropping tables and establishing constraints.
14. The keyword `LIKE` can be used in a `WHERE` clause to refer to a range of values.
15. The SQL keyword `GROUP BY` instructs the DBMS to group together those rows that have the same value in a column.
16. The keyword `BETWEEN` can be used in a `WHERE` clause to refer to a range of values.
17. Read operation on any table means to fetch some useful information from the table.
18. Use `fetchall()` method to retrieve only one value from a database table.
19. Row count is a read-only attribute.
20. To disconnect database connection, use `connect ()` method.
21. Update statement is used to insert data into the table.
22. The `ORDER BY` clause combines all those records that have identical values in a particular field or a group of fields.
23. The `WHERE` clause is used to specify filtering conditions for groups.
24. `DISTINCT` option causes a group function to consider only the unique values of the argument expression.
25. By default, `ORDER BY` clause sorts the result set in descending order.
26. `COUNT ()` function ignores duplicate and null values while counting the records.
27. The return value of `MAX ()` function is a numeric value.
28. Multiple row function is also known as scalar function
29. `SUM ()` function is used to count the total number of records in a table.
30. Argument type of `AVG ()` function can be numeric or string data type.

-----ANSWER -----

OBJECTIVE TYPE QUESTIONS /MULTIPLE CHOICE QUESTIONS

1	(a)Structure Query Language	21	(b)Having, where	41	(c)25,35,38
2	(d)Data Manipulation Language	22	(d)SELECT city, temperature FROM weather ORDER BY city;	42	(a)MySQL-connector
3	(a)Where	23	(a)SELECT DISTINCT	43	(d)50000
4	(a) MAX()	24	(b)AVG	44	(d)Having
5	(c) Fixed, variable	25	(a)update	45	(a)fetchall
6	(b)Tuple	26	(b)Primary	46	(a)To filter out the summary groups
7	(d)mycon.close	27	(a)DML (Data Manipulation Language)	47	(d)Select empid where empid=1009 and lastname='GUPTA';
8	(a)Tables	28	(b)LIKE operator	48	(c)IS operator
9	(c)Data Definition Language	29	(b)fetchtwo()	49	(c)IS/IS Not
10	(c)Tuple	30	(d)Ascending	50	(d)COUNT (*)
11	(d)fetchone	31	(c)Roll No	51	(a)SELECT COUNT (Project) FROM Students
12	(a)localhost	32	(b)Values	52	(c)With
13	(c)Relations	33	(a)SELECT * FROM STUDENTS WHERE LNAME LIKE'-_ _ _ _ A';	53	(b)Count(*)
14	(b)Data Manipulation Language (DML)	34	(d)ID	54	(d)All of the above
15	(a)Attribute	35	(c)Distinct	55	(c)Ascending
16	(a)Amit, Sumit	36	(c)As	56	(b)False
17	(d)%	37	(c)SELECT * FROM Students WHERE FirstName LIKE '%a'	57	(b)Key
18	(a)DML	38	(c)Acts like a WHERE clause but is used from groups rather than rows	58	(b)Cartesian product
19	(a)Round()	39	(a)GROUP BY	59	(b)DDL
20	(a)Root	40	(b)Connect	60	(b)Exactly, Atleast

-----ANSWER -----

VERY SHORT ANSWER QUESTIONS (1 MARKS EACH)

Q.N.	ANS	Q.N.	ANS	Q.N.	ANS
1	order by clause	2	Insert , Delete	3	SQL is structured query language. It is a standard language of all the RDBMS
4	A field which is unique for each and every record in table is called primary key .	5	show tables;	6	Alter
7	Update	8	Delete	9	Drop
10	Create —DDL and Delete —DML	11	Group by	12	Those fields which can act as primary key is called candidate key.
13	Select * from RECORD where Rname like %math%;	14	Ans. It returns the largest value from a particular column.	15	Number of columns in table is called degree. Number of rows in a table is called cardinality.
16	Ans. DDL – Data Definition Language, DML – Data Manipulation Language.	17	Update	18	Desc
19	sum()	20	Having clause can be used with group by clause while where clause can be used without group by clause.	21	avg()
22	“Like” operator is used to match a particular pattern in a particular column in SQL.	23	Delete from data	24	A function which perform calculation on multiple values and return single value.
25	% and underscore(_)	26	Redundancy	27	Char is fixed length data type and varchar is variable length data type.

-----ANSWER -----
Fill in the blanks

1	Structured	11	NOT IN	21	Group/row/ aggregation function
2	Mysql.connector	12	LIKE	22	ORDER BY
3	FROM	13	SUM	23	Having
4	DISTINCT	14	MAX	24	Ascending
5	Asterisk (*)	15	MIN	25	DESC
6	WHERE	16	COUNT		
7	ORDER BY	17	GROUP BY		
8	DESC	18	Fetchall()		
9	AND	19	Connection		
10	IN	20	Select		

-----ANSWER -----
True and False

1	F	11	T	21	F
2	T	12	T	22	F
3	F	13	F	23	F
4	F	14	F	24	T
5	F	15	T	25	F
6	T	16	T	26	T
7	T	17	T	27	T
8	F	18	F	28	F
9	F	19	T	29	F
10	T	20	F	30	F

SHORT ANSWER QUESTIONS (2 MARKS EACH)

Q1. What is the difference between cardinality and degree?.

Q.2 Differentiate between WHERE and HAVING clause.

Q.3 Define Primary Key of a relation in SQL. Give an Example using a dummy table.

Q.4 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)
```

Q. 5 Differentiate between DDL and DML with one Example each.

Q.6 Answer the following:

i) Name the package for connecting Python with MySQL database.

ii) What is the purpose of cursor object?

Q.7 What do you mean by domain of an attribute in DBMS? Explain with an example.

Q.8 Differentiate between fetchone() and fetchmany() methods with suitable examples.

Q.9 What is Constraint ? Give example of any two constraints.

Q.10 Write the steps to perform an Insert query in database connectivity application.

Table 'student' values are rollno, name, age (10,'Ashok',26)

Q.11 Define Candidate Key and Alternate Key with suitable examples from a table containing some meaningful data.

Q.12 Define RDBMS. Name any two RDBMS software.

Q.13 What is the purpose of the following clauses in a select statement?

i) ORDER BY ii) HAVING

Q.14 Write SQL queries for the following:

i. Create the table Product with appropriate data types and constraints.

ii. Identify the primary key in Product.

Q.15 Write any two differences between Single_row functions and Aggregate functions.

ANSWERS-(SHORT ANSWER QUESTIONS (2 MARKS EACH))

ANS .1 Degree - The number of attributes or columns in a relation is called the Degree of the relation.

Cardinality - The number of tuples/ rows in a relation is called the Cardinality of the relation.

ANS.2 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.

Ans.3 Primary Key- one or more attribute of a relation used to uniquely identify each and every tuple in the relation. For Example : In the below Table Student, RollNo can be the Primary Key

RollNo	Name	Marks
--------	------	-------

1	Pratham	75
---	---------	----

2	Srishti	80
---	---------	----

Ans. 4 { } and fetchone()

Ans 5 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

Ans 6 .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.

Ans 7 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).

Ans 8 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.

Ans 9 .Constraints are the checking condition which we apply on table to ensure the correctness of data . Example primary key, not null, default, unique etc

Ans 10

```
import mysql.connector as mydb
conn= mydb.connect(host="localhost", user="root", passwd="1234")
cur=conn.cursor()
cur.execute("INSERT INTO student values(10,'Ashok',26);")
cur.commit()
```

Ans.11 A table may have more than one such attribute/group of attributes that identifies a tuple uniquely, all such attribute(s) are known as Candidate Keys. All the candidate key except primary key are called Alternate key.

Table: Employee (**empno**, aadhar_no, voter_id, ename, deptno, sal, city)

In the above table Employee, empno,aadhar_no, voter_id all are candidate key If we define empno as primary key then remaining candidate keys will be alternate key.

Ans.12 RDBMS stands for Relational Database Management System. It is a program that offers commands to create, update, and manage the data with multiple tables. Examples of RDBMS are

1. MySQL
2. Oracle
3. Microsoft SQL Server.

Ans.13

i) Order By : This clause is used to arrange the records in ascending or descending order. for example Select * from book order by price;

ii) Having : HAVING Clause in SQL is used to specify conditions on the rows with GROUP BY clause. for example Select sum(price) from book group by (subject) having price > 100;

Ans 14.

i) Create table product(Pcode varchar(3) not null Primary key , PName Varchar(20), UPrice int(4), Manufacture Varchar(20));

ii) Pcode is primary key.

Ans.15

Single row Functions	Multiple row functions / Aggregate Functions
It operates on a single row at a time.	It operates on multiple rows.
It returns one result per row	It returns one result for multiple rows.
It can be used in Select, Where, and Order by clause.	It can be used in the select clause only.
Math, String and Date functions are examples of single row functions.	Max(), Min(), Avg(), Sum(), Count() and Count(*) are examples of multiple row functions.

CASE STUDY BASED QUESTIONS/SQL-OUTPUT QUESTIONS (3 MARKS)

Q1. Consider the following tables FACULTY and COURSES and give outputs for SQL queries (i) to (iii)

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) Select COUNT(DISTINCT F_ID) from COURSES;
- ii) Select MIN(Salary) from FACULTY,COURSES where COURSES.F_ID =FACULTY.F_ID;
- iii) Select avg(Salary) from FACULTY where Fname like 'R%'

Q.2 Write output for (i) & (iii) based on a table COMPANY and CUSTOMER.

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	Rohan Sharma	70000	20	222
102	Deepak Kumar	50000	10	666
103	Mohan Kumar	30000	5	111
104	Sahil Bansal	35000	3	333
105	Neha Soni	25000	7	444
106	Sonal Aggarwal	20000	5	333

107	Arjun Singh	50000	15	666
-----	-------------	-------	----	-----

- (i) SELECT COUNT(*) ,CITY FROM COMPANY GROUP BY CITY;
(ii) SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10 ;
(iii) SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE “%r%”;

Q.3 Write output for (i) to (iii) based on the tables ‘Watches’ and ‘Sale’ given below.

Table: Watches

Watchid	Watch_Name	Price	Type	Qty_Store
W001	HighTime	10000	Unisex	100
W002	LifeTime	15000	Ladies	150
W003	Wave	20000	Gents	200
W004	HighFashion	7000	Unisex	250
W005	GoldenTime	25000	Gents	100

Table: Sale

Watchid	Qty_Sold	Quarter
W001	10	1
W003	5	1
W002	20	2
W003	10	2
W001	15	3
W002	20	3
W005	10	3
W003	15	4

- i. select quarter, sum(qty_sold) from sale group by quarter;
ii. select watch_name,price,type from watches w, sale s wherew.watchid!=s.watchid;
iii. select watch_name, qty_store, sum(qty_sold), qty_store-sum(qty_sold) “Stock” from watches w, sale s where w.watchid=s.watchid group by s.watchid;

Q.4 Write the output for SQL queries (i) to (iii), which are based on the table: **Employees**

Employees

Empid	Firstname	Lastname	Designation	City	Salary
010	Ravi	Kumar	Manager	GZB	75000
105	Harry	Waltor	Manager	GZB	65000
152	Sam	Tones	Director	Paris	80000
215	Sarah	Ackerman	Manager	Upton	75000
244	Manila	Sengupta	Clerk	New Delhi	50000
300	Robert	Samuel	Clerk	Washington	45000
335	Ritu	Tondon	Clerk	GZB	40000
400	Rachel	Lee	Salesman	New York	32000
441	Peter	Thompson	Salesman	Paris	28000

- (i) Select Designation , count(*) from Employees Group by Designation Having count(*)>=3;

(ii) Select Max (salary), Min(Salary) from Employees Where City in ('GZB', 'Paris');

(iii) Select Firstname, Lastname from Employees where Firstname like 'R%';

Q.5 Write output for queries (i) to (iii), which are based on the table:

Books.

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;

ANSWERS

ANS .1 (i) 4 (ii) 6000 (iii) 12500

Ans.2

- (i) Count(*) CITY
3 DELHI
2 MUMBAI
1 MADRAS
- (ii) MIN (PRICE) -50000
MAX (PRICE) -7000
- (iii) AVG (QTY)
11

Ans.3

- (i) Quarter sum(qty_sold)
1 15
2 30
3 45
4 15
- (ii) watch_name price type
HighFashion 7000 Unisex
- (iii)
watch_name qty_store qty_sold Stock
HighTime 100 25 75
LifeTime 150 40 110
Wave 200 30 170
GoldenTime 100 10 90

Ans4.

- (i) Manager 3
Clerk 3
- (ii) 80000 28000
- (iii) Ravi Kumar
Robert Samuel

Ritu Tondon

Rachel Lee

Ans .5

(i) 3 (ii)650 (iii)TDH

CASE STUDY BASED QUESTIONS (5 MARKS EACH)

1. Write SQL commands for (a) to (e) on the basis of table GRADUATE.

Table: GRADUATE

S.N O.	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	1
2	DIVAKAR	450	COMPUTER SC	68	1
3	DIVYA	300	CHEMISTRY	62	2
4	ARUN	350	PHYSICS	63	1
5	SABINA	500	MATHEMATICS	70	1
6	JOHN	400	CHEMISTRY	55	2
7	ROBERT	250	PHYSICS	64	1
8	RUBINA	450	MATHEMATICS	68	1
9	VIKAS	500	COMPUTER SC	62	1
10.	MOHAN	300	MATHEMATICS	57	2

- (a) List the names of those students who have obtained DIV 1 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) Display Name of the students whose average is more than 65.

Q.2 Write SQL commands for (a) to (e) on the basis of table CLUB.

Table: CLUB

COACH ID	COACH NAME	AGE	SPORTS	DATE OF AP	PAY	SEX
1.	KUKREJA	35	KARATE	27/03/1997	1000	M
2.	RAVINA	34	KARATE	20/01/1998	1200	F
3.	KARAN	34	SQUASH	19/02/1998	2000	M
4.	TARUN	33	BASKETBALL	01/01/1998	1500	M
5.	ZUBIN	36	SWIMMING	12/01/1998	750	M
6.	KETAKI	36	SWIMMING	24/02/1998	800	F
7.	ANKITA	39	SQUASH	20/02/1998	2200	F
8.	ZAREEN	37	KARATE	20/02/1998	1100	F
9.	KUSH	41	SWIMMING	13/01/1998	900	M
10.	SHAILYA	37	BASKETBALL	19/02/1998	1700	M

- (a) To show all information about the swimming coaches in the club.
- (b) To list names of all coaches with their date of appointment (DATOFAPP) in descending order.
- (c) To display a report, showing coachname, pay, age and bonus (15% of pay) for all the coaches.
- (d) To insert in a new row in the **CLUB** table with the following data:
11, "PRAKASH", 37, "SQUASH", {25/02/98}, 2500, "M"
- (e) Display Coachname ,Sports,Pay from the table .

3. Write SQL command for (a) to (e) on the basis of tables INTERIORS and NEWONES.

Table: INTERIORS

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	Red rose	Double bed	23/02/02	32000	15
2	Soft touch	Baby cot	20/01/02	9000	10
3	Jerry's home	Baby cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double bed	12/01/02	15000	20
6	Jerry look	Baby cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15
10	Dine Paradise	Dining Table	19/02/02	11000	15

Table: NEWONES

NO	ITEMNAME	TYPE	DATEOFSTOCKS	PRICE	DISCOUNT
11	White wood	Double bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby cot	21/02/13	7000	10

- (a) To show all information about the sofas from the **INTERIORS** table.
- (b) To list the **ITEMNAME** which are priced at more than 10,000 from the **INTERIORS** table.
- (c) To list **ITEMNAME** and **TYPE** of those items, in which **DATEOFSTOCK** is before 22/01/02 from the **INTERIERS** table in the descending order of **ITEMNAME**.
- (d) To display **ITEMNAME** and **DATEOFSTOCK** of those items, in which the discount Percentage is more than 15 from **INTERIORS** table.
- (e) To count the number of items, whose type is "Double Bed" from **INTERIOR** table.

4. Write SQL command for (a) to (e) on the bases of tables FURNITURE AND ARRIVALS.

Table: FURNITURE

NO	ITEMNAME	TYPE	DATEOFSTOC K	PRICE	DISCOUN T
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby cot	20//01/02	7000	20
3	Dolphin	Baby cot	19/02/02	9500	20
4	Decent	Office Table	01/01/02	25000	30
5	Comfort zone	Double Bed	12/01/02	25000	25
6	Donald	Baby cot	24/02/02	6500	15
7	Royal Finish	Office Table	20/02/02	18000	30
8	Royal tiger	Sofa	22/02/02	31000	30
9	Econo sitting	Sofa	13/12/01	9500	25
10	Eating paradise	Dining Table	19/02/02	11500	25

Table: ARRIVALS

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
11	Wood Comfort	Double Bed	23/03/03	25000	25
12	Old Fox	Sofa	20/02/03	17000	20
13	Micky	Baby cot	21/02/02	7500	15

- To show all information about the baby cots from the FURNITURE table.
- To list the ITEMNAME which are priced at more than 15000 from the FURNITURE table.
- To list ITEMNAME AND TYPE of those items, in which DATEOFSTOCK is before 22/01/02 from the FURNITURE table in descending order of ITEMNAME.
- To display ITEMNAME and DATEOFSTOCK of those items, in which the DISCOUNTpercentage is more than 25 from FURNITURE table.
- To insert a new row in the ARRIVALS table with the following data: 14, "Velvet touch", Double bed", {25/03/03}, 25000, 30

5. Write SQL commands for (a) to (e) on the basis of Teacher relation given below:

Relation Teacher

No.	Name	Age	Department	Date of join	Salary	Sex
1.	Jugal	34	Computer	10/01/97	12000	M
2.	Sharmila	31	History	24/03/98	20000	F
3.	Sandeep	32	Maths	12/12/96	30000	M
4.	Sangeeta	35	History	01/07/99	40000	F
5.	Rakesh	42	Maths	05/09/97	25000	M
6.	Shyam	50	History	27/06/98	30000	M
7.	Shiv Om	44	Computer	25/02/97	21000	M
8.	Shalakra	33	Maths	31/07/97	20000	F

- To show all information about the teacher of history department
- To list the names of female teacher who are in Hindi department
- To list names of all teachers with their date of joining in ascending order.
- To display teacher's Name, Salary, Age for male teacher only
- To count the number of teachers with Age>23.

6. Answer the questions (i) and (v) on the basis of the following tables SHOP and ACCESSORIES.

TABLE SHOP

ID	SName	Area
S0001	ABC Computeronics	
	CP S0002	
	All Infotech Media	
	GK II	
S0003	Tech Shoppe	CP
S0004	Greeks Techno Soft	Nehru Place
S0005	Hitech Tech Store	Nehru Place

TABLE ACCESSORIES

No	Name	Price	ID
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

Write the SQL queries:

- (i) To display Name and Price of all the accessories in ascending order of their Price.
- (ii) To display Id and SName of all Shop in Nehru Place.
- (iii) To display Minimum and Maximum Price of each Name of accessories.
- (iv) To display Name, Price of all accessories and their respective SName where they are available
- (v) To display all Sname in descending order.

7. Consider the following table GARMENT and FABRIC, Write SQL commands for the statements (i) to (v)

TABLE GARMENT

GCODE	DESCRIPTION	PRICE	FCODE	READYDATE
10023	PENCIL SKIRT	1150	F 03	19-DEC-08
10001	FORMAL SHIRT	1250	F 01	12-JAN-08
10012	INFORMAL SHIRT	1550	F 02	06-JUN-08
10024	BABY TOP	750	F 03	07-APR-07
10090	TULIP SKIRT	850	F 02	31-MAR-07
10019	EVENING GOWN	850	F 03	06-JUN-08
10009	INFORMAL PANT	1500	F 02	20-OCT-08
10007	FORMAL PANT	1350	F 01	09-MAR-08
10020	FROCK	850	F 04	09-SEP-07
10089	SLACKS	750	F 03	20-OCT-08

TABLE FABRIC

FCODE	TYPE
F 04	POLYSTER
F 02	COTTON
F 03	SILK
F01	TERELENE

- (i) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.
- (ii) To display the details of all the GARMENT, which have READYDATE in between 08-DEC-07 and 16-JUN-08 (inclusive if both the dates).
- (iii) To display the average PRICE of all the GARMENT, which are made up of fabric with FCODE as F03.
- (iv) To display fabric wise highest and lowest price of GARMENT from GARMENT table. (Display FCODE of each GARMENT along with highest and lowest Price).
- (v) To display Gcode whose Price is more than 1000.

ANSWERS:

CASE STUDY BASED QUESTIONS

- 1.(a) Select Name From GRADUATE Where DIV = 1 Order by Name;
(b) Select Name, stipend, subject, stepend *12 From GRADUATE
(c) Select count (*) From GRADUATE
Where subject IN (“PHYSICS”, “COMPUTER SC”);
(d) Insert into GRADUATE Values (11, “KAJOL”, 300, “COMPUTER SC”, 75,1);
(e) Select name from Graduate where average>65

2. (a) Select * From CLUB Where sports = “SWIMMING”;
(b) Select COACHNAME From CLUB order by DATOFAPP desc
(c) Select coachname, pay, age, 0.15 * pay From CLUB;
(d) Insert into CLUB Values (11, “PRAKASH”, 37, “SQUASH”, {25/02/98}, 2500, “M”);
(e) Select Coachname ,Sports,Pay from Club .

- 3 (a) Select * From INTERIORS Where TYPE = “Sofa”;
(b) Select ITEMNAME From INTERIORS Where PRICE >
(c) 10000; Select ITEMNAME, TYPE From INTERIORS
Where DATEOFSTOCK < {22/01/02} Order by ITEMNAME desc;
(d) Select ITEMNAME, DATEOFSTOCK From INTERIORS Where DISCOUNT
> 15;
(e) Select Count (*) From INTERIORS Where TYPE = “Double
Bed”;

- 4 (a) Select * From FURNITURE Where TYPE = “Baby cot”;
(b) Select ITEMNAME From FURNITURE Where PRICE >
(c) 15000; Select ITEMNAME, TYPE From FURNITURE
Where DATEOFSTOCK < {22/01/02} Order by ITEMNAME desc;
(d) Select ITEMNAME, DATEOFSTOCK From FURNITURE Where
DISCOUNT > 25.
(e) Insert Into ARRIVALS Values (14, “Velvet touch”, “Double bed”,
{25/03/03}, 25000,30);

- 5 (a) SELECT * FROM Teacher WHERE Department = “History”;
(b) SELECT Name FROM Teacher WHERE Department = “Hindi” and Sex = “F”;
(c) SELECT Name, Dateofjoin FROM Teacher ORDER BY Dateofjoin;
(d) SELECT Name, Salary, Age FROM Teacher
WHERE Age > 23 AND Sex = ‘M’;
(e) SELECT COUNT (*) FROM Teacher WHERE Age > 23;

6. (i) SELECT Name, Price FROM ACCESSORIES ORDER BY Price ASC;
(ii) SELECT ID, Price FROM SHOP
WHERE Area = ‘Nehru Place’;
(iii) SELECT MIN (Price) “Minimum
Price”, MAX (Price) “Maximum
Price”,
Name FROM ACCESSORIES GROUP BY Name;
(iv) SELECT Name, Price, SName
FROM ACCESSORIES A, SHOP S WHERE A. ID = S. ID
(v) Select Sname from Shop order by SName desc;

7. (i) SELECT GCODE, DESCRIPTION FROM GARMENT ORDER BY GCODE DESC;
(ii) SELECT * FROM GARMENT WHERE READY DATE BETWEEN '08-DEC-07' AND '16-JUN-08';
(iii) SELECT AVG (PRICE) FROM GARMENT WHERE FCODE = 'F03';
(iv) SELECT FCODE, MAX (PRICE), MIN (PRICE) FROM GARMENT GROUP BY FCODE;
(v) Select Gcode from GARMENT where Price>1000;

Class: XII Session 2021-22
Computer Science (083)

TERM – 2 Question Paper (Theory)

Unit-wise mark distribution pattern

Unit	MCQ	Short Answer	Long Answer	Case study	Total
Unit -1	2 (2 Q)	-	3 (1 Q)	-	5
Unit -2	2 (2 Q)	4 (2 Q)	-	4 (1 Q)	10
Unit - 3	1 (1 Q)	6 (3 Q)	9 (3 Q)	4 (1 Q)	20
	5	10	12	8	35

		OR																																																												
		Write a POPCITY() function to implement pop from stack like operation to remove a node(same as above) from Stack.																																																												
15	<p>A department is considering to maintain their worker data using SQL to store the data. As a Database Administrator, Karan has decided that:</p> <p>Name of the database –Department Name of the table –Worker</p> <p>The attributes of Worker are as follows: WORKER_ID – CHARACTER OF SIZE 3 FIRST_NAME – CHARACTER OF SIZE 10 LAST_NAME – CHARACTER OF SIZE 10 SALARY – NUMERIC JOINING_DATE – DATE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>WORKER_ID</th> <th>FIRST_NAME</th> <th>LAST_NAME</th> <th>SALARY</th> <th>JOINING_DATE</th> <th>DEPARTMENT</th> </tr> </thead> <tbody> <tr><td>001</td><td>MONIKA</td><td>ARORA</td><td>100000</td><td>2014-02-20</td><td>HR</td></tr> <tr><td>002</td><td>NIHARIKA</td><td>DIWAN</td><td>80000</td><td>2014-06-11</td><td>Admin</td></tr> <tr><td>003</td><td>VISHAL</td><td>SINGHAL</td><td>300000</td><td>2014-02-20</td><td>HR</td></tr> <tr><td>004</td><td>AMITABH</td><td>SINGH</td><td>500000</td><td>2014-02-20</td><td>Admin</td></tr> <tr><td>005</td><td>VIVEK</td><td>BHATI</td><td>500000</td><td>2014-06-11</td><td>Admin</td></tr> <tr><td>006</td><td>VIPUL</td><td>DIWAN</td><td>200000</td><td>2014-06-11</td><td>Account</td></tr> <tr><td>007</td><td>SATISH</td><td>KUMAR</td><td>75000</td><td>2014-02-20</td><td>Account</td></tr> <tr><td>008</td><td>MONIKA</td><td>CHAUHAN</td><td>80000</td><td>2014-04-11</td><td>Admin</td></tr> </tbody> </table> <p>Attempt any 3 of the following-</p>							WORKER_ID	FIRST_NAME	LAST_NAME	SALARY	JOINING_DATE	DEPARTMENT	001	MONIKA	ARORA	100000	2014-02-20	HR	002	NIHARIKA	DIWAN	80000	2014-06-11	Admin	003	VISHAL	SINGHAL	300000	2014-02-20	HR	004	AMITABH	SINGH	500000	2014-02-20	Admin	005	VIVEK	BHATI	500000	2014-06-11	Admin	006	VIPUL	DIWAN	200000	2014-06-11	Account	007	SATISH	KUMAR	75000	2014-02-20	Account	008	MONIKA	CHAUHAN	80000	2014-04-11	Admin	
WORKER_ID	FIRST_NAME	LAST_NAME	SALARY	JOINING_DATE	DEPARTMENT																																																									
001	MONIKA	ARORA	100000	2014-02-20	HR																																																									
002	NIHARIKA	DIWAN	80000	2014-06-11	Admin																																																									
003	VISHAL	SINGHAL	300000	2014-02-20	HR																																																									
004	AMITABH	SINGH	500000	2014-02-20	Admin																																																									
005	VIVEK	BHATI	500000	2014-06-11	Admin																																																									
006	VIPUL	DIWAN	200000	2014-06-11	Account																																																									
007	SATISH	KUMAR	75000	2014-02-20	Account																																																									
008	MONIKA	CHAUHAN	80000	2014-04-11	Admin																																																									
i	<p>Karan wants to remove all the data from table WORKER from the database department. Which command will he use from the following:</p> <p>a) DELETE FROM WORKER; b) DROP TABLE WORKER; c) DROP DATABASE Department; d) DELETE * FROM WORKER;</p>							1																																																						
ii	Identify the attribute best suitable to be declared as a primary key.							1																																																						
iii	Karan wants to increase the size of the FIRST_NAME column from 10 to 20 characters. Write an appropriate query to change the size.							1																																																						
iv	Write a query to display the structure of the table Worker, i.e. name of the attribute and their respective data types.							1																																																						
16	Write the output of the SQL queries (i) to (iii) based on the table: Employee																																																													
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ECODE</th> <th>NAME</th> <th>DEPT</th> <th>DOB</th> <th>GENDER</th> <th>DESIGNATION</th> <th>SALARY</th> </tr> </thead> <tbody> <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>OFFICE</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>OFFICE</td><td>12-12-1994</td><td>M</td><td>CLERK</td><td>10000</td></tr> </tbody> </table>							ECODE	NAME	DEPT	DOB	GENDER	DESIGNATION	SALARY	101	SUNITA	SALES	06-06-1995	F	MANAGER	25000	102	NEERU	OFFICE	05-07-1993	F	CLERK	12000	103	RAJU	PURCHASE	05-06-1994	M	MANAGER	26000	104	NEHA	OFFICE	08-08-1995	F	ACCOUNTANT	18000	105	NISHANT	OFFICE	08-10-1995	M	CLERK	10000	106	VINOD	OFFICE	12-12-1994	M	CLERK	10000						
ECODE	NAME	DEPT	DOB	GENDER	DESIGNATION	SALARY																																																								
101	SUNITA	SALES	06-06-1995	F	MANAGER	25000																																																								
102	NEERU	OFFICE	05-07-1993	F	CLERK	12000																																																								
103	RAJU	PURCHASE	05-06-1994	M	MANAGER	26000																																																								
104	NEHA	OFFICE	08-08-1995	F	ACCOUNTANT	18000																																																								
105	NISHANT	OFFICE	08-10-1995	M	CLERK	10000																																																								
106	VINOD	OFFICE	12-12-1994	M	CLERK	10000																																																								
i	SELECT SUM(SALARY) FROM EMPLOYEE WHERE GENDER='F' AND DEPT ='SALES';																																																													
ii	SELECT MAX(DOB), MIN(DOB) FROM EMPLOYEE;																																																													
iii	SELECT GENDER, COUNT(*) FROM EMPLOYEE GROUP BY GENDER;																																																													

17	Consider the table TEACHER given below. Write commands in SQK for (i) to (iii)										
	ID	NAME	DEPARTMENT	HIREDATE	CATEGOR Y	GENDER	SALARY				
	1	TANIYA	SOCIALSTUDIE S	1994-03-17	TGT	F	25000				
	2	ABHISHEK	ART	1990-12-02	PRT	M	20000				
	3	SANJANA	ENGLISH	1980-05-16	PGT	F	30000				
	4	VISHWAJEE T	ENGLISH	1989-10-16	TGT	M	25000				
	5	AMAN	HINDI	1990-01-08	PRT	F	22000				
	6	PRITAM	MATH	1980-03-17	PRT	F	21000				
	7	RAJKUMAR	SCIENCE	1994-02-09	TGT	M	27000				
8	SITAL	MATH	1980-11-17	TGT	F	24500					
Attempt the following -											
i	To display all information about teachers of Female PGT Teachers.						1				
ii	To list names, departments and date of hiring of all the teachers in descending order of date of joining.						1				
iii	To count the number of teachers and sum of their salary department wise.						1				
SECTION - 3											
18	<p>Success Institution is an educational organisation. It is planning to set up its India campus at Nepal with its head office at Mumbai. The Nepal campus has 4 main buildings- ADMIN, ENGINEERING, BUSINESS and MEDIA.</p> <p>You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (iv), keeping in mind the distance between the buildings and other given parameters.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>ADMIN</td> <td>ENGINEERING</td> </tr> <tr> <td>BUSINESS</td> <td>MEDIA</td> </tr> </table> <p>Shortest distance between various buildings</p> <p>ADMIN to ENGINEERING 50 M</p> <p>ADMIN to BUSINESS 80 M</p> <p>ADMIN to MEDIA 45 M</p> <p>ENGINEERING to BUSINESS 60 M</p> <p>ENGINEERING to MEDIA 145 M</p> <p>BUSINESS to MEDIA 50 M</p> <p>Mumbai Head Office To Nepal Campus 2175 KM</p> <p>Number of Computers installed at various buildings are as follows:</p> <p>ADMIN 20</p> <p>ENGINEERING 150</p> <p>BUSINESS 35</p> <p>MUMBAI HEAD OFFICE 05</p>							ADMIN	ENGINEERING	BUSINESS	MEDIA
	ADMIN	ENGINEERING									
	BUSINESS	MEDIA									
	i	Suggest the most appropriate location of the server inside the Nepal Campus(out of 4 buildings), to get the best connectivity for maximum number of computers. Justify your answer.						1			
	ii	Suggest and draw the cable layout to efficiently connect various buildings within the Nepal Campus for connecting the computers.						1			
	iii	Which hardware device will you suggest to be procured by the company to be installed to protect and control the Internet uses within the campus.						1			
	iv	Which of the following will you suggest to establish the online face-to-face communication between the people in the ADMIN office of Nepal Campus and Mumbai Head Office? a)Cable TV b)E-Mail c)Video Conferencing d) Text Chat						1			
	19	Consider the tables Watches and Sale given below and answer the following questions.									
		Watches									
Watchid		Watch_Name	Price	Type	Qty_Store						
W001		High Time	10000	Unisex	100						
W002		Life Time	15000	Ladies	150						
W003		Wave	20000	Gents	200						
W004	High Fashion	7000	Unisex	250							
W005	Golden Time	25000	Gents	100							

Sale		
Watchid	Qty_Sold	Quarter
W001	10	1
W003	5	1
W002	20	2
W003	10	2
W001	15	3
W002	20	3
W005	10	4
W003	15	4

Write the SQL command for the following statements:

i	To display total quantity in store of unisex type watches.	1
ii	To display watch name and their quantity sold in first quarter.	1
Give the output for the following SQL queries:		
i	SELECT WATCH_NAME, PRICE , TYPE FROM WATCHES W, SALE S WHERE W.WATCHID=S.WATCHID;	1
ii	SELECT WATCH_NAME, QTY_STORE , SUM(QTY_SOLD), FROM WATCHES W, SALE S WHERE W.WATCHID = S.WATCHID GROUP BY S.WATCHID	1

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
TERM 2 EXAM SET-1-2021-22
MARKING SCHEME

Class –XII

SUB-Computer Sc.

Question No.	PART - A	Marks Allotted						
	Section -1							
1	C) UNDERFLOW	1						
2	C) Reversing the order of items	1						
3	a)1	1						
4	b)peer-to-peer network	1						
5	a)modulation	1						
6	c)distinct	1						
7	b)Exactly, Atleast	1						
8	a)count(attribute)	1						
	Part B							
9	Expand the following-	2						
i	SIMPLE MAIL TRANSFER PROTOCOL							
ii	DYNAMIC HOST CONFIGURATION PROTOCOL							
iii	HYPERTEXT TRANSFER PROTOCOL							
iv	TRANSMISSION CONTROL PROTOCOL							
10	When a hosting provider allocates space on a web server for a website to store its files, they are hosting a website.	2						
	OR							
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Video Conferencing</td> <td style="width: 50%;">Chat</td> </tr> <tr> <td>Audio as well Visuals are shared</td> <td>Only text communicated.</td> </tr> <tr> <td>High Bandwidth required</td> <td>Works with low bandwidth also.</td> </tr> </table>	Video Conferencing	Chat	Audio as well Visuals are shared	Only text communicated.	High Bandwidth required	Works with low bandwidth also.	2
Video Conferencing	Chat							
Audio as well Visuals are shared	Only text communicated.							
High Bandwidth required	Works with low bandwidth also.							
11	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.	2						
12	CANDIDATE KEY A Candidate key is the one that is capable of becoming primary key. CARDINALITY OF A RELATION Cardinality of a relation represents number of rows in the relation.	2						
13	ORDER BY for sorting GROUP BY for grouping data	2						
14	<pre>city=[] def PUSHCITY(cityname,pincode): city.insert(0,[cityname,pincode]) OR city=[] def POPCITY(): if len(city)==0: print("Underflow") return None return city.pop()</pre>	3						
15	ANSWER							
i	d) DELETE * FROM WORKER;	1						
ii	WORKER_ID	1						
iii	ALTER TABLE WORKER MODIFY FIRST_NAME VARCHAR(20)	1						
iv	DESC WORKER/DESCRIBE WORKER;	1						
16	ANSWER							
i	43000							
ii	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">MAX(DOB)</td> <td style="width: 50%;">MIN(DOB)</td> </tr> <tr> <td>08-10-1995</td> <td>05-07-1993</td> </tr> </table>	MAX(DOB)	MIN(DOB)	08-10-1995	05-07-1993			
MAX(DOB)	MIN(DOB)							
08-10-1995	05-07-1993							
iii	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">GENDER</td> <td style="width: 50%;">COUNT(*)</td> </tr> <tr> <td>F</td> <td>3</td> </tr> <tr> <td>M</td> <td>3</td> </tr> </table>	GENDER	COUNT(*)	F	3	M	3	
GENDER	COUNT(*)							
F	3							
M	3							

17	ANSWER																
i	SELECT * FROM TEACHER WHERE GENDER='F' AND CATEGORY='PGT';	1															
ii	SELECT NAME,DEPARTMENT AND HIREDATE FROM TEACHER ORDER BY HIREDATE DESC;	1															
iii	SELECT COUNT(*),SUM(SALARY) FROM TEACHER GROUP BY DEPARTMENT;	1															
18	ANSWER																
i	ENGINEERING block because it has max number of computers.	1															
ii		1															
iii	Firewall	1															
iv	c) Video Conferencing	1															
19	ANSWER																
i	SELECT SUM(QTY STORE) FROM WATCHES WHERE TYPE ='Unisex';	1															
ii	SELECT WATCH_NAME, QTY_SOLD FROM WATCHES W, SALE S WHERE S.WATCHID=S.WATCHID AND QUARTER=1;	1															
iii	<table border="1"> <tr> <td>HIGH TIME</td> <td>10000</td> <td>UNISEX</td> </tr> <tr> <td>LIFE TIME</td> <td>15000</td> <td>LADIES</td> </tr> <tr> <td>WAVE</td> <td>20000</td> <td>GENTS</td> </tr> <tr> <td>HIGH FASHION</td> <td>7000</td> <td>UNISEX</td> </tr> <tr> <td>GOLDEN TIME</td> <td>25000</td> <td>GENTS</td> </tr> </table>	HIGH TIME	10000	UNISEX	LIFE TIME	15000	LADIES	WAVE	20000	GENTS	HIGH FASHION	7000	UNISEX	GOLDEN TIME	25000	GENTS	1
HIGH TIME	10000	UNISEX															
LIFE TIME	15000	LADIES															
WAVE	20000	GENTS															
HIGH FASHION	7000	UNISEX															
GOLDEN TIME	25000	GENTS															
iv	<table border="1"> <tr> <td>HIGH TIME</td> <td>100</td> <td>25</td> </tr> <tr> <td>LIFE TIME</td> <td>150</td> <td>40</td> </tr> <tr> <td>WAVE</td> <td>200</td> <td>30</td> </tr> <tr> <td>GOLDEN TIME</td> <td>100</td> <td>10</td> </tr> </table>	HIGH TIME	100	25	LIFE TIME	150	40	WAVE	200	30	GOLDEN TIME	100	10	1			
HIGH TIME	100	25															
LIFE TIME	150	40															
WAVE	200	30															
GOLDEN TIME	100	10															

15	Write the outputs of the SQL Queries(i) to (iii) based on the relations Client and Product given below: Client																																																																														
	<table border="1"> <thead> <tr> <th>C_ID</th> <th>ClientName</th> <th>City</th> <th>Share</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Cosmetic Shop</td> <td>Delhi</td> <td>2000</td> </tr> <tr> <td>02</td> <td>Total Health</td> <td>Mumbai</td> <td>3500</td> </tr> <tr> <td>03</td> <td>Live Life</td> <td>Delhi</td> <td>4500</td> </tr> <tr> <td>04</td> <td>Pretty Woman</td> <td>Delhi</td> <td>2500</td> </tr> <tr> <td>05</td> <td>Dreams</td> <td>Delhi</td> <td>NULL</td> </tr> </tbody> </table>	C_ID	ClientName	City	Share	01	Cosmetic Shop	Delhi	2000	02	Total Health	Mumbai	3500	03	Live Life	Delhi	4500	04	Pretty Woman	Delhi	2500	05	Dreams	Delhi	NULL																																																						
C_ID	ClientName	City	Share																																																																												
01	Cosmetic Shop	Delhi	2000																																																																												
02	Total Health	Mumbai	3500																																																																												
03	Live Life	Delhi	4500																																																																												
04	Pretty Woman	Delhi	2500																																																																												
05	Dreams	Delhi	NULL																																																																												
	Attempt any 03 of the following :-																																																																														
i	SELECT COUNT(CITY),CITY FROM CLIENT GROUP BY CITY;	1																																																																													
ii	SELECT CLIENTNAME FROM CLIENT WHERE CLIENTNAME LIKE '%C%';	1																																																																													
iii	SELECT AVG(SHARE) FROM CLIENT WHERE CITY='DELHI';	1																																																																													
iv	SELECT CLIENTNAME FROM CLIENT ORDER BY SHARE DESC;	1																																																																													
16	Consider the following table GARMENT. Write SQL commands for the following statements.																																																																														
	<table border="1"> <thead> <tr> <th>GCODE</th> <th>DESCRIPTION</th> <th>PRICE</th> <th>FCODE</th> <th>READYDATE</th> </tr> </thead> <tbody> <tr> <td>10023</td> <td>SKIRT</td> <td>1150</td> <td>F03</td> <td>19-DEC-08</td> </tr> <tr> <td>10001</td> <td>FORMAL SHIRT</td> <td>1250</td> <td>F01</td> <td>12-JAN-08</td> </tr> <tr> <td>10012</td> <td>INFORMAL SHIRT</td> <td>1550</td> <td>F02</td> <td>06-JUN-08</td> </tr> <tr> <td>10024</td> <td>BABY TOP</td> <td>750</td> <td>F03</td> <td>07-APR-07</td> </tr> <tr> <td>10090</td> <td>TOP</td> <td>850</td> <td>F02</td> <td>31-MAR-07</td> </tr> <tr> <td>10019</td> <td>EVENING DRESS</td> <td>850</td> <td>F03</td> <td>06-JUN-08</td> </tr> <tr> <td>10009</td> <td>INFORMAL PANT</td> <td>1500</td> <td>F02</td> <td>20-OCT-08</td> </tr> <tr> <td>10017</td> <td>FORMAL PANT</td> <td>1350</td> <td>F01</td> <td>09-MAR-08</td> </tr> <tr> <td>10020</td> <td>FROCK</td> <td>850</td> <td>F04</td> <td>09-SEP-07</td> </tr> <tr> <td>10089</td> <td>SLACKS</td> <td>750</td> <td>F03</td> <td>31-OCT-08</td> </tr> </tbody> </table>	GCODE	DESCRIPTION	PRICE	FCODE	READYDATE	10023	SKIRT	1150	F03	19-DEC-08	10001	FORMAL SHIRT	1250	F01	12-JAN-08	10012	INFORMAL SHIRT	1550	F02	06-JUN-08	10024	BABY TOP	750	F03	07-APR-07	10090	TOP	850	F02	31-MAR-07	10019	EVENING DRESS	850	F03	06-JUN-08	10009	INFORMAL PANT	1500	F02	20-OCT-08	10017	FORMAL PANT	1350	F01	09-MAR-08	10020	FROCK	850	F04	09-SEP-07	10089	SLACKS	750	F03	31-OCT-08																							
GCODE	DESCRIPTION	PRICE	FCODE	READYDATE																																																																											
10023	SKIRT	1150	F03	19-DEC-08																																																																											
10001	FORMAL SHIRT	1250	F01	12-JAN-08																																																																											
10012	INFORMAL SHIRT	1550	F02	06-JUN-08																																																																											
10024	BABY TOP	750	F03	07-APR-07																																																																											
10090	TOP	850	F02	31-MAR-07																																																																											
10019	EVENING DRESS	850	F03	06-JUN-08																																																																											
10009	INFORMAL PANT	1500	F02	20-OCT-08																																																																											
10017	FORMAL PANT	1350	F01	09-MAR-08																																																																											
10020	FROCK	850	F04	09-SEP-07																																																																											
10089	SLACKS	750	F03	31-OCT-08																																																																											
i	To Display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.																																																																														
ii	To display the details of all the GARMENTS, which have READYDATE in between 08-DEC-07 and 16-JUN-08(inclusive of both the dates)																																																																														
iii	To display FCODE wise highest and lowest price of GARMENTs from GARMENT table.																																																																														
17	Consider the following table HOSPITAL. Write SQL commands for the following statements.																																																																														
	<table border="1"> <thead> <tr> <th>NO</th> <th>NAME</th> <th>AGE</th> <th>DEPARTMENT</th> <th>DATEOFJOIN</th> <th>CHARGES</th> <th>GENDER</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ARPIT</td> <td>62</td> <td>SURGERY</td> <td>21/01/98</td> <td>300</td> <td>M</td> </tr> <tr> <td>2</td> <td>ZARINA</td> <td>22</td> <td>ENT</td> <td>12/12/97</td> <td>250</td> <td>F</td> </tr> <tr> <td>3</td> <td>KAREEM</td> <td>22</td> <td>ORTHOPEDIC</td> <td>19/02/98</td> <td>200</td> <td>M</td> </tr> <tr> <td>4</td> <td>ARUN</td> <td>12</td> <td>SURGERY</td> <td>11/01/98</td> <td>300</td> <td>M</td> </tr> <tr> <td>5</td> <td>ZUBIN</td> <td>30</td> <td>ENT</td> <td>12/01/98</td> <td>250</td> <td>M</td> </tr> <tr> <td>6</td> <td>KETAKI</td> <td>16</td> <td>ENT</td> <td>24/02/98</td> <td>250</td> <td>F</td> </tr> <tr> <td>7</td> <td>ANKITA</td> <td>29</td> <td>CARDIOLOGY</td> <td>20/02/98</td> <td>800</td> <td>F</td> </tr> <tr> <td>8</td> <td>ZAREEN</td> <td>45</td> <td>GYNECOLOGY</td> <td>22/02/98</td> <td>300</td> <td>F</td> </tr> <tr> <td>9</td> <td>KUSH</td> <td>19</td> <td>CARDIOLOGY</td> <td>13/01/98</td> <td>800</td> <td>M</td> </tr> <tr> <td>10</td> <td>SHILPA</td> <td>23</td> <td>NUCLEAR MEDICINE</td> <td>21/02/98</td> <td>400</td> <td>F</td> </tr> </tbody> </table>	NO	NAME	AGE	DEPARTMENT	DATEOFJOIN	CHARGES	GENDER	1	ARPIT	62	SURGERY	21/01/98	300	M	2	ZARINA	22	ENT	12/12/97	250	F	3	KAREEM	22	ORTHOPEDIC	19/02/98	200	M	4	ARUN	12	SURGERY	11/01/98	300	M	5	ZUBIN	30	ENT	12/01/98	250	M	6	KETAKI	16	ENT	24/02/98	250	F	7	ANKITA	29	CARDIOLOGY	20/02/98	800	F	8	ZAREEN	45	GYNECOLOGY	22/02/98	300	F	9	KUSH	19	CARDIOLOGY	13/01/98	800	M	10	SHILPA	23	NUCLEAR MEDICINE	21/02/98	400	F	
NO	NAME	AGE	DEPARTMENT	DATEOFJOIN	CHARGES	GENDER																																																																									
1	ARPIT	62	SURGERY	21/01/98	300	M																																																																									
2	ZARINA	22	ENT	12/12/97	250	F																																																																									
3	KAREEM	22	ORTHOPEDIC	19/02/98	200	M																																																																									
4	ARUN	12	SURGERY	11/01/98	300	M																																																																									
5	ZUBIN	30	ENT	12/01/98	250	M																																																																									
6	KETAKI	16	ENT	24/02/98	250	F																																																																									
7	ANKITA	29	CARDIOLOGY	20/02/98	800	F																																																																									
8	ZAREEN	45	GYNECOLOGY	22/02/98	300	F																																																																									
9	KUSH	19	CARDIOLOGY	13/01/98	800	M																																																																									
10	SHILPA	23	NUCLEAR MEDICINE	21/02/98	400	F																																																																									
i	SELECT COUNT (DISTINCT Charges) FROM HOSPITAL;	1																																																																													
ii	SELECT MIN (Age) FROM HOSPITAL WHERE Sex = "F";	1																																																																													
iii	SELECT SUM (Charges) FROM HSOPITAL WHERE Department = "F";	1																																																																													
SECTION - 3																																																																															
18	Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has 3 academic blocks and one human resource Centre as shown in the diagram given below: <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">BUSINESS</td> <td style="padding: 5px;">TECHNOLOGY BLOCK</td> </tr> </table>	BUSINESS	TECHNOLOGY BLOCK																																																																												
BUSINESS	TECHNOLOGY BLOCK																																																																														

LAW BLOCK

HR CENTRE

Centre-to-Centre distance between various blocks is as follows:

Law block to business block	- 40 m
Law block to technology block	- 80 m
Law block to HR block	- 105 m
Business block to technology block	- 30 m
Business block to HR block	- 35 m
Technology block to HR block	- 15 m

Number of computers in each of the buildings is as follows:

Law block	- 15
Technology block	- 40
HR Centre	- 115
Business block	- 25

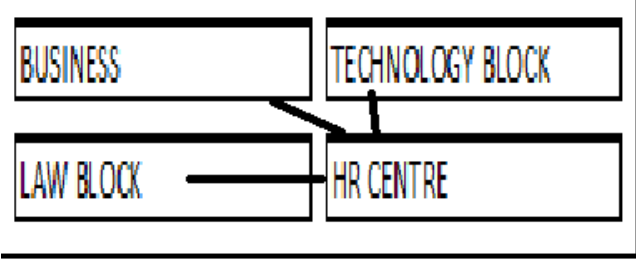
i	Suggest the most suitable place to house the server of the organization with suitable reason.	1																																																										
ii	Suggest a cable layout of connection between the blocks.	1																																																										
iii	Which device should be placed/installed in each of these blocks to efficiently connect all the computers within these blocks?	1																																																										
iv	The university is planning to link its sales counters situated in various parts of the other cities. Which type of network out of LAN, MAN or WAN will be formed?	1																																																										
19	<p>Write SQL Commands for the following queries based on the relations PRODUCT and CLIENT given below.</p> <p>Table: Product</p> <table border="1"> <thead> <tr> <th>P_ID</th> <th>ProductName</th> <th>Manufacturer</th> <th>Price</th> <th>ExpiryDate</th> </tr> </thead> <tbody> <tr> <td>TP01</td> <td>Talcum Powder</td> <td>LAK</td> <td>40</td> <td>2011-06-26</td> </tr> <tr> <td>FW05</td> <td>Face Wash</td> <td>ABC</td> <td>45</td> <td>2010-12-01</td> </tr> <tr> <td>BS01</td> <td>Bath Soap</td> <td>ABC</td> <td>55</td> <td>2010-09-10</td> </tr> <tr> <td>SH06</td> <td>Shampoo</td> <td>XYZ</td> <td>120</td> <td>2012-04-09</td> </tr> <tr> <td>FW12</td> <td>Face Wash</td> <td>XYZ</td> <td>95</td> <td>2010-08-15</td> </tr> </tbody> </table> <p>Table: Client</p> <table border="1"> <thead> <tr> <th>C_ID</th> <th>ClientName</th> <th>City</th> <th>P_ID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Cosmetic Shop</td> <td>Delhi</td> <td>FW05</td> </tr> <tr> <td>6</td> <td>Total Health</td> <td>Mumbai</td> <td>BS01</td> </tr> <tr> <td>12</td> <td>Live Life</td> <td>Delhi</td> <td>SH06</td> </tr> <tr> <td>15</td> <td>Pretty One</td> <td>Delhi</td> <td>FW05</td> </tr> <tr> <td>16</td> <td>Dreams</td> <td>Bengaluru</td> <td>TP01</td> </tr> <tr> <td>14</td> <td>Expressions</td> <td>Delhi</td> <td>NULL</td> </tr> </tbody> </table>	P_ID	ProductName	Manufacturer	Price	ExpiryDate	TP01	Talcum Powder	LAK	40	2011-06-26	FW05	Face Wash	ABC	45	2010-12-01	BS01	Bath Soap	ABC	55	2010-09-10	SH06	Shampoo	XYZ	120	2012-04-09	FW12	Face Wash	XYZ	95	2010-08-15	C_ID	ClientName	City	P_ID	1	Cosmetic Shop	Delhi	FW05	6	Total Health	Mumbai	BS01	12	Live Life	Delhi	SH06	15	Pretty One	Delhi	FW05	16	Dreams	Bengaluru	TP01	14	Expressions	Delhi	NULL	
P_ID	ProductName	Manufacturer	Price	ExpiryDate																																																								
TP01	Talcum Powder	LAK	40	2011-06-26																																																								
FW05	Face Wash	ABC	45	2010-12-01																																																								
BS01	Bath Soap	ABC	55	2010-09-10																																																								
SH06	Shampoo	XYZ	120	2012-04-09																																																								
FW12	Face Wash	XYZ	95	2010-08-15																																																								
C_ID	ClientName	City	P_ID																																																									
1	Cosmetic Shop	Delhi	FW05																																																									
6	Total Health	Mumbai	BS01																																																									
12	Live Life	Delhi	SH06																																																									
15	Pretty One	Delhi	FW05																																																									
16	Dreams	Bengaluru	TP01																																																									
14	Expressions	Delhi	NULL																																																									
i	To display the Client Name and City of all Mumbai- and Delhi-based clients in Client table.	1																																																										
ii	Increase the price of all the products in Product table by 10%.	1																																																										
iii	To display the ProductName, Manufacturer, Expiry Date of all the products that expired on or before '2010-12-31'.	1																																																										
iv	To display productName, Manufacturer and ClientName of Mumbai City.	1																																																										

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
TERM 2 EXAMINATION SET-2-2021-22
MARKING SCHEME

Class –XII

SUB-Computer Sc.

Question No.	PART - A Select the most appropriate option out of the options given for each question. Attempt any 5 questions from no 1 to 8.	Marks Allotted		
1	d)-18	1		
2	b)push	1		
3	c)32 bits	1		
4	a)Firewall	1		
5	c)Physical Address(MAC)	1		
6	b)6	1		
7	a)Alter	1		
8	c)Fixed, Variable	1		
	Part B			
9	Expand the following-	2		
i	GSM: GLOBAL SYSTEM FOR MOBILES			
ii	POP: POST OFFICE PROTOCOL			
iii	FTP: FILE TRANSFER PROTOCOL			
iv	XML: EXTENSIBLE MARKUP LANGUAGE			
10	Web-Server A web server is software and hardware that uses HTTP (Hypertext Transfer Protocol) and other protocols to respond to client requests made over the World Wide Web.	2		
	OR			
	Difference between HUB and SWITCH. <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">HUB Broadcasts messages. Lower Bandwidth</td> <td style="width: 50%;">SWITCH Unicasts messages. Higher bandwidth</td> </tr> </table>	HUB Broadcasts messages. Lower Bandwidth	SWITCH Unicasts messages. Higher bandwidth	2
HUB Broadcasts messages. Lower Bandwidth	SWITCH Unicasts messages. Higher bandwidth			
11	Difference between DDL and DML. Data Definition Language is used to work on structure of object (tables etc.) while Data Manipulation Language is used to work on data stored in tables. E.g. DDL create , alter, drop DML insert, delete, update	2		
12	Primary Key A set of one or more attributes that can uniquely identify tuples within the relation. Degree of a Relation Degree of a relation represents number of attributes in the relation.	2		
13	Alter Update	2		
14	def PushBook(Book): bno = input("enter book no : ") btitle = input("enter book title:") rec = bno + " " + btitle Book.append(rec) print(Book) OR def PopBook(Book) : # If stack is empty if len(Book)==0: print("Underflow") else: print("Deleted entry :", Book.pop())	3		

15	Answer	
i	4 Delhi 1 Mumbai	1
ii	ClientName Cosmetic Shop	1
iii	avg(Share) 3000	1
iv	Client Name Live Life Total Health Pretty Woman Cosmetic Shop Dreams	1
16	Answer	
i	SELECT GCODE, DESCRIPTION FROM GARMENT ORDER BY GCODE DESC	
ii	SELECT * FROM GARMENT WHERE READYDATE BETWEEN '08-DEC-07' AND '16-JUN-08';	
iii	SELECT FCODE, MAX(PRICE), MIN(PRICE) FROM GARMENT GROUP BY FCODE;	
17	Answer	
i	5	1
ii	16	1
iii	5	1
18	Answer	
i	HR CENTRE block because it has max number of computers.	1
ii	Suggest a cable layout of connection between the blocks. 	1
iii	HUB/SWITCH	1
iv	WAN	1
19	Answer	
i	SELECT CLIENTNAME, CITY FROM CLIENTWHERE CITY = 'MUMBAI' OR CITY = 'DELHI';	1
ii	UPDATE PRODUCT SET PRICE = PRICE + 0.10 * PRICE;	1
iii	SELECT PRODUCTNAME, MANUFACTURER, EXPIRYDATE FROM PRODUCT WHERE EXPIRYDATE <= '2010-12-31';	1
iv	select ProductName, Manufacturer, ClientName from product,client Where product.P_ID = Client.P_ID and city='Mumbai'	1

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION
Term-2 Examination SET-3 – 2021-22
Model Question Paper

Class- XII, Subject – Computer Science (083)

Duration: 2 Hrs

MM: 35

General Instructions to the Examinee:

1. This question paper contains two parts – A and B. Each part is compulsory.
2. Part A and Part B both have choices.
3. Part-A is having MCQs
4. Part-B is descriptive paper.
5. Part-B has 3 sections –
 - a. Section – I is short answer questions of 2 marks each, having 5 questions, out of which 2 questions having internal options.
 - b. Section – II is long answer questions of 3 marks each, having 4 questions, out of which 2 questions having internal options.
 - c. Section – III is very long answer questions of 4 marks each, having 2 questions with internal options.

Part-A (Attempt any 5 questions from question no 1 to 7.)		
1.	All aggregate functions except _____ ignore null values in their input collection. (a) Count (attribute) (b) Count (*) (c) Avg () (d) Sum ()	1
2.	Which is not a constraint in SQL? (a) Unique (b) Distinct (c) Primary key (d) Not Null	1
3.	Stack is a data structure that follows _____ order (a) FIFO (b) LIFO (c) FILO (d) LILO	1
4.	A device used to connect dissimilar networks is called..... (a) hub (b) switch (c) bridge (d) gateway	1
5.	Which of these is not an example of unguided media? (a) Optical Fibre Cable (b) Radio wave	1

		(c) Bluetooth (d) Satellite																																																		
6.		In a stack, if a user tries to remove an element from an empty stack, it is called _____ (a) Overflow (b) Underflow (c) Empty collection (d) Garbage collection	1																																																	
7.		Which is known as range operator in MySQL. (a) IN (b) BETWEEN (c) IS (d) DISTINCT	1																																																	
Part-B (Section - I)																																																				
8.		Expand the following terms: a) POP3 b) TCP/IP c) VoIP d) HTTPS	2																																																	
9.		Differentiate between WHERE and HAVING clause.	2																																																	
10.		Give the differences between HTML and XML. OR Differentiate between Circuit and Packet Switching.	2																																																	
11.		Differentiate between fetchone() and fetchall() methods with suitable examples for each	2																																																	
12.		What is the difference between hub and switch? Which is more preferable in a large network of computers and why? OR Differentiate between WAN and MAN. Also give an example of WAN.	2																																																	
(Section - II)																																																				
13.		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 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.	3																																																	
14.		Write the outputs of the SQL queries (i) to (iii) based on the relations Client and Product given below: Client <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>C_ID</th> <th>ClientName</th> <th>City</th> <th>P_ID</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Cosmetic Shop</td> <td>Delhi</td> <td>TP01</td> </tr> <tr> <td>02</td> <td>Total Health</td> <td>Mumbai</td> <td>FW05</td> </tr> <tr> <td>03</td> <td>Live Life</td> <td>Delhi</td> <td>BS01</td> </tr> <tr> <td>04</td> <td>Pretty Woman</td> <td>Delhi</td> <td>SH06</td> </tr> <tr> <td>05</td> <td>Dreams Delhi</td> <td>Delhi</td> <td>TP01</td> </tr> </tbody> </table> Product <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>P_ID</th> <th>ProductName</th> <th>Manufacturer</th> <th>Price</th> <th>Discount</th> </tr> </thead> <tbody> <tr> <td>TP01</td> <td>Talcom Powder</td> <td>LAK</td> <td>40</td> <td></td> </tr> <tr> <td>FW05</td> <td>Face Wash</td> <td>ABC</td> <td>45</td> <td>5</td> </tr> <tr> <td>BS01</td> <td>Bath Soap</td> <td>ABC</td> <td>55</td> <td></td> </tr> <tr> <td>SH06</td> <td>Shampoo</td> <td>XYZ</td> <td>120</td> <td>10</td> </tr> </tbody> </table>	C_ID	ClientName	City	P_ID	01	Cosmetic Shop	Delhi	TP01	02	Total Health	Mumbai	FW05	03	Live Life	Delhi	BS01	04	Pretty Woman	Delhi	SH06	05	Dreams Delhi	Delhi	TP01	P_ID	ProductName	Manufacturer	Price	Discount	TP01	Talcom Powder	LAK	40		FW05	Face Wash	ABC	45	5	BS01	Bath Soap	ABC	55		SH06	Shampoo	XYZ	120	10	3
C_ID	ClientName	City	P_ID																																																	
01	Cosmetic Shop	Delhi	TP01																																																	
02	Total Health	Mumbai	FW05																																																	
03	Live Life	Delhi	BS01																																																	
04	Pretty Woman	Delhi	SH06																																																	
05	Dreams Delhi	Delhi	TP01																																																	
P_ID	ProductName	Manufacturer	Price	Discount																																																
TP01	Talcom Powder	LAK	40																																																	
FW05	Face Wash	ABC	45	5																																																
BS01	Bath Soap	ABC	55																																																	
SH06	Shampoo	XYZ	120	10																																																

	<table border="1"> <tr> <td>FW06</td> <td>Face Wash</td> <td>XYZ</td> <td>95</td> <td></td> </tr> </table> <p>(i) SELECT count(discount) FROM Product ; (ii) SELECT Manufacturer ,Max(Price), Min(Price) FROM Product group by manufacturer; (iii) SELECT ProductName, Client.ClientName FROM Product, Client WHERE Product.P_ID = Client.P_ID AND Client.City="Mumbai";</p>	FW06	Face Wash	XYZ	95																																																									
FW06	Face Wash	XYZ	95																																																											
15.	<p>An organization HiTech Solutions is considering to maintain their employees records using SQL to store the data. As a database administrator, Dimple has decided that :</p> <ul style="list-style-type: none"> • Name of the database - HITECH • Name of the table - HRDATA • The attributes of HRDATA are as follows: ECode – Numeric EName – character of size 30 Desig – Character of size 15 Sal – numeric <p style="text-align: center;">Table: HRDATA</p> <table border="1"> <thead> <tr> <th>ECode</th> <th>EName</th> <th>Desig</th> <th>Sal</th> </tr> </thead> <tbody> <tr> <td>80001</td> <td>Sunishka Guha</td> <td>Programmer</td> <td>50000</td> </tr> <tr> <td>80004</td> <td>Tanya Chandra</td> <td>Manager</td> <td>65000</td> </tr> <tr> <td>80007</td> <td>Sanjana Kapoor</td> <td>Programmer</td> <td>45000</td> </tr> <tr> <td>80008</td> <td>Tejas Sahu</td> <td>Admin</td> <td>55000</td> </tr> <tr> <td>80012</td> <td>Aditya Kumar</td> <td>Executive</td> <td>35000</td> </tr> </tbody> </table> <p>(i) Identify the attribute best suitable to be declared as a primary key. (ii) Write the degree and cardinality of the table HRDATA. (iii) Write command to insert following data in the table: ECode = 80015, Ename = "Aashifa" Sal = 43000</p>	ECode	EName	Desig	Sal	80001	Sunishka Guha	Programmer	50000	80004	Tanya Chandra	Manager	65000	80007	Sanjana Kapoor	Programmer	45000	80008	Tejas Sahu	Admin	55000	80012	Aditya Kumar	Executive	35000	3																																				
ECode	EName	Desig	Sal																																																											
80001	Sunishka Guha	Programmer	50000																																																											
80004	Tanya Chandra	Manager	65000																																																											
80007	Sanjana Kapoor	Programmer	45000																																																											
80008	Tejas Sahu	Admin	55000																																																											
80012	Aditya Kumar	Executive	35000																																																											
16.	<p>What do you understand by Primary Key, Candidate Key and Alternate Key in a table? In the table given below, identify the Primary, candidate and alternate keys –</p> <table border="1"> <thead> <tr> <th>Rno</th> <th>Stud_Name</th> <th>Aadhar_no</th> <th>UID</th> <th>Admn_no</th> <th>Class</th> </tr> </thead> <tbody> <tr> <td>1201</td> <td>Arpita Kar</td> <td>112235451254</td> <td>2236121</td> <td>2301</td> <td>XII A</td> </tr> <tr> <td>1202</td> <td>Farishta Peter</td> <td>365214529856</td> <td>2236122</td> <td>1407</td> <td>XII B</td> </tr> <tr> <td>1203</td> <td>Janhvi Sinha</td> <td>214532562144</td> <td>2236123</td> <td>803</td> <td>XII B</td> </tr> <tr> <td>1204</td> <td>Shubham Sen</td> <td>121136524521</td> <td>2236124</td> <td>510</td> <td>XII A</td> </tr> <tr> <td>1205</td> <td>Brijesh Yadav</td> <td>323354552155</td> <td>2236125</td> <td>102</td> <td>XII C</td> </tr> </tbody> </table> <p style="text-align: center;">OR</p> <p>Explain any three aggregate functions of SQL with suitable example of each taking the following table into consideration –</p> <table border="1"> <thead> <tr> <th>Empno</th> <th>Emp_Name</th> <th>Department</th> <th>Salary</th> </tr> </thead> <tbody> <tr> <td>E123</td> <td>Ankush Das</td> <td>Sales</td> <td>35000</td> </tr> <tr> <td>E034</td> <td>Snigdha Sahu</td> <td>Sales</td> <td>35000</td> </tr> <tr> <td>E245</td> <td>Neeraj Kapoor</td> <td>Finance</td> <td>55000</td> </tr> <tr> <td>E112</td> <td>Shweta Jagtap</td> <td>Marketing</td> <td>45000</td> </tr> <tr> <td>E089</td> <td>Rekha Sao</td> <td>HR</td> <td>65000</td> </tr> </tbody> </table>	Rno	Stud_Name	Aadhar_no	UID	Admn_no	Class	1201	Arpita Kar	112235451254	2236121	2301	XII A	1202	Farishta Peter	365214529856	2236122	1407	XII B	1203	Janhvi Sinha	214532562144	2236123	803	XII B	1204	Shubham Sen	121136524521	2236124	510	XII A	1205	Brijesh Yadav	323354552155	2236125	102	XII C	Empno	Emp_Name	Department	Salary	E123	Ankush Das	Sales	35000	E034	Snigdha Sahu	Sales	35000	E245	Neeraj Kapoor	Finance	55000	E112	Shweta Jagtap	Marketing	45000	E089	Rekha Sao	HR	65000	3
Rno	Stud_Name	Aadhar_no	UID	Admn_no	Class																																																									
1201	Arpita Kar	112235451254	2236121	2301	XII A																																																									
1202	Farishta Peter	365214529856	2236122	1407	XII B																																																									
1203	Janhvi Sinha	214532562144	2236123	803	XII B																																																									
1204	Shubham Sen	121136524521	2236124	510	XII A																																																									
1205	Brijesh Yadav	323354552155	2236125	102	XII C																																																									
Empno	Emp_Name	Department	Salary																																																											
E123	Ankush Das	Sales	35000																																																											
E034	Snigdha Sahu	Sales	35000																																																											
E245	Neeraj Kapoor	Finance	55000																																																											
E112	Shweta Jagtap	Marketing	45000																																																											
E089	Rekha Sao	HR	65000																																																											

(Section - III)
(Q. no. 17 and 18, having 4 marks each with internal choices)

17. Consider the following tables Supplier and Consumer. Write SQL commands for the statements (a) to (d).

Supplier

SupplierID	SupplierName	SupplierAddress	Suppliercity
JR01	Rohit Bhalla	14, Floret Appt	Jaipur
PH02	Harish Nagar	A3, Gandhi Lane	Panjim
PS15	Subrat Ray	14/B, Surya Vihar	Panjim
JT50	Tina Chandran	12-H, Bank Colony	Jaipur

Consumer

C_ID	SupplierID	CName	CAddress	Ccity
C101	JR01	Varun Mishra	5, Central Avenue	Delhi
C342	PH02	Sonia Singh	116, Block A	Delhi
C112	JR01	Prabhu S	2A, Andheri East	Mumbai
C008	PS15	Abhishek Das	B5, CS Terminals	Panjim
C035	JT50	Rahul Jain	13,B Mayur Vihar	Mumbai

- (a) To display the C_ID, Supplier name, Supplier Address, Consumer Name and Consumer Address for every Consumer 1
- (b) To display Consumer details in ascending order of CName 1
- (c) To display number of Consumers from each city 1
- (d) To display the details of suppliers whose supplier city is 'Panjim' 1

OR

Write the outputs of the SQL queries (i) to (iv) based on the relations Drink and Consumer given below:

Table: Drink

D_ID	DrinkName	Company	Price
AP01	Aam Panna	Haldiram	185.00
OS23	Orange Sqaush	Rasna	75.00
MP22	Mango pulp	Haldiram	190.00
LI12	Lichi	Real	125.00
LE02	Lemonade	Real	110.00

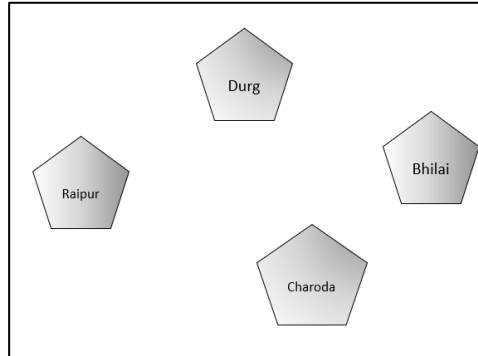
Table:Consumer

C_ID	ConsumerName	Address	D_ID
1	D Mart	Junwani, Durg	LI12
6	Rajesh Super Bazaar	A Market Sec-10	OS23
12	Shubham K Mart	Junwani, Durg	AP01
15	Big Bazaar	Surya Mall, Bhilai	LE02

- (i) SELECT count(DISTINCT Address) FROM Consumer; 1
- (ii) SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Drink GROUP BY Company; 1
- (iii) SELECT Consumer.ConsumerName, Drink.DrinkName, Drink.Price FROM Drink, Consumer WHERE Consumer.D_ID = Drink.D_ID; 1
- (iv) SELECT DrinkName from Drink where DrinkName like "-a%"; 1

18.

Dhanvridhhi Investment Pvt. Ltd. has four branches in a Campus, named Durg, Bhilai, Raipur and Charoda. Dhanvridhhi Investment Pvt. 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
Durg	Bhilai	30 m
Bhilai	Charoda	40 m
Charoda	Raipur	25 m
Durg	Raipur	150 m
Bhilai	Raipur	105 m
Durg	Charoda	60 m

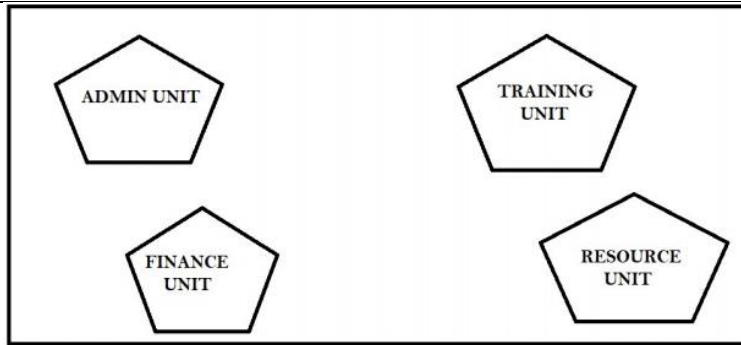
In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Office	No. of computers
Durg	40
Bhilai	80
Charoda	200
Raipur	60

- (i) Suggest the most suitable place (i.e., Block/Center) to install the server of this organization with a suitable reason. 1
- (ii) Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices? 1
- (iii) Suggest the placement of a Repeater in the network with justification. 1
- (iv) 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. 1

OR

“Ujjwal Patra” an NGO is planning to setup its new campus at Pondicherry for its Web-based activities. The campus has four(04) UNITS as shown below:



Distances between above UNITS are given here's under:

Unit-1	Unit-2	Distance
Admin	Training	65 m
Admin	Resource	120 m
Admin	Finance	100 m
Finance	Training	60 m
Finance	Resource	40 m
Training	Resource	50 m

No. of Computers in various UNITS are:

Unit	No. of computers
Admin	150
Finance	25
Training	90
Resource	75

- (i) Suggest an ideal cable layout for connecting the above UNITS.
- (ii) Which network device is used to connect the computers in all UNITS?
- (iii) Suggest the placement of Repeater in the UNITS of above network.
- (iv) NGO is planning to connect its Regional Office at Chennai, Tamilnadu. Which out of the following wired communication, will you suggest for a very high-speed connectivity?
 (a) Twisted Pair cable (b) Ethernet cable (c) Optical Fiber

1
1
1
1

-----All the Best-----

KENDRIYA VIDYALAYA SANGATHAN, RAIPUR REGION

Term-2 Examination SET-3 – 2021-22

Answer Key

Class- XII, Subject – Computer Science (083)

Duration: 2 Hrs

MM: 35

General Instructions to the Examinee:

1. This question paper contains two parts – A and B. Each part is compulsory.
2. Part A and Part B both have choices.
3. Part-A is having MCQs
4. Part-B is descriptive paper.
5. Part-B has 3 sections –
 - a. Section – I is short answer questions of 2 marks each, having 5 questions, out of which 2 questions having internal options.
 - b. Section – II is long answer questions of 3 marks each, having 4 questions, out of which 2 questions having internal options.
 - c. Section – III is very long answer questions of 4 marks each, having 2 questions with internal options.

NOTE: Answers are suggestive. Marks can be given for any other valid and correct answer.

Part-A (Attempt any 5 questions from question no 1 to 7.)		
1.	All aggregate functions except _____ ignore null values in their input collection. (a) Count (attribute) (b) Count (*) (c) Avg () (d) Sum ()	B
2.	Which is not a constraint in SQL? (a) Unique (b) Distinct (c) Primary key (d) Not Null	B
3.	Stack is a data structure that follows _____ order (a) FIFO (b) LIFO (c) FILO (d) LILO	C
4.	A device used to connect dissimilar networks is called..... (a) hub (b) switch (c) bridge (d) gateway	D
5.	Which of these is not an example of unguided media? (a) Optical Fibre Cable (b) Radio wave (c) Bluetooth (d) Satellite	A

OR

Differentiate between Circuit and Packet Switching.

Answer –

Circuit Switching	Packet Switching
In circuit switching there are 3 phases i) Connection Establishment. ii) Data Transfer. iii) Connection Released.	In Packet switching directly data transfer takes place.
In circuit switching, each data unit know the entire path address which is provided by the source.	In Packet switching, each data unit just know the final destination address intermediate path is decided by the routers.
Circuit switching is more reliable.	Packet switching is less reliable.
It is not a store and forward technique.	It is a store and forward technique.
In Circuit Switching there is a physical path between the source and the destination	In Packet Switching there is no physical path between the source and the destination

Note: 2 marks for any 2 valid differences

11.

Differentiate between fetchone() and fetchall() methods with suitable examples for each.

Answer –

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.

(1 mark for valid difference and 1 mark for correct example)

2

12.

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

Answer –

Hub forwards the message to every node connected and create a huge traffic in the network hence reduces efficiency whereas a Switch is also called intelligent hub since it 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 which may also reduce the bandwidth and cause network congestion.

(1 mark for each)

OR

Differentiate between WAN and MAN. Also give an example of WAN.

Answer –

WAN is also called as Wide Area Network. It is a network of computing devices crossing the limits of city, country or continent. It covers area of over hundreds

2

	<p>or thousands of kilometres radius. For example: Network of ATMs, BANKS, National or International organization offices spread over a country or continent.</p> <p>MAN is also called as Metropolitan Area Network. It is a network of communicating devices within a city. It covers an area of few kilometres to few hundreds kilometres. For example: Network of schools, bank, and government offices within a city.</p> <p>Best example of WAN is the Internet. (1 mark for each)</p>																									
(Section - II)																										
13.	<p>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.</p> <p>Answer – <pre>def PUSH(Arr,value): 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)</pre> <p style="text-align: center;">OR</p> <p>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.</p> <p>Answer – <pre>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)</pre> <p>Note: Full marks can be awarded for any other correct logic.</p> </p></p>	3																								
14.	<p>Write the outputs of the SQL queries (i) to (iii) based on the relations Client and Product given below:</p> <p style="text-align: center;">Client</p> <table border="1" data-bbox="292 1827 963 2051" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>C_ID</th> <th>ClientName</th> <th>City</th> <th>P_ID</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>Cosmetic Shop</td> <td>Delhi</td> <td>TP01</td> </tr> <tr> <td>02</td> <td>Total Health</td> <td>Mumbai</td> <td>FW05</td> </tr> <tr> <td>03</td> <td>Live Life</td> <td>Delhi</td> <td>BS01</td> </tr> <tr> <td>04</td> <td>Pretty Woman</td> <td>Delhi</td> <td>SH06</td> </tr> <tr> <td>05</td> <td>Dreams Delhi</td> <td>Delhi</td> <td>TP01</td> </tr> </tbody> </table>	C_ID	ClientName	City	P_ID	01	Cosmetic Shop	Delhi	TP01	02	Total Health	Mumbai	FW05	03	Live Life	Delhi	BS01	04	Pretty Woman	Delhi	SH06	05	Dreams Delhi	Delhi	TP01	
C_ID	ClientName	City	P_ID																							
01	Cosmetic Shop	Delhi	TP01																							
02	Total Health	Mumbai	FW05																							
03	Live Life	Delhi	BS01																							
04	Pretty Woman	Delhi	SH06																							
05	Dreams Delhi	Delhi	TP01																							

Product

P_ID	ProductName	Manufacturer	Price	Discount
TP01	Talcum Powder	LAK	40	
FW05	Face Wash	ABC	45	5
BS01	Bath Soap	ABC	55	
SH06	Shampoo	XYZ	120	10
FW06	Face Wash	XYZ	95	

(i) SELECT count(discount) FROM Product ;

Answer – 2

1

(ii) SELECT Manufacturer ,Max(Price), Min(Price) FROM Product group by manufacturer;

Answer –

LAK 40 40

ABC 55 45

XYZ 120 95

1

(iii) SELECT ProductName, Client.ClientName FROM Product, Client WHERE Product.P_ID = Client.P_ID AND Client.City="Mumbai";

Answer –

Talcum Powder Cosmetic Shop

Talcum Powder Dreams Delhi

Facewash Total Health

Bath Soap Live Life

Shampoo Pretty Woman

1

15.

An organization **HiTech Solutions** is considering to maintain their employees' records using SQL to store the data. As a database administrator, Dimple has decided that :

- Name of the database - HITECH
- Name of the table - HRDATA
- The attributes of HRDATA are as follows:
 ECode – Numeric
 EName – character of size 30
 Desig – Character of size 15
 Sal – numeric

Table: HRDATA

ECode	EName	Desig	Sal
80001	Sunishka Guha	Programmer	50000
80004	Tanya Chandra	Manager	65000
80007	Sanjana Kapoor	Programmer	45000
80008	Tejas Sahu	Admin	55000
80012	Aditya Kumar	Executive	35000

(i) Identify the attribute best suitable to be declared as a primary key.

Answer – Ecode

1

(ii) Write the degree and cardinality of the table HRDATA.

1

Answer – Degree – 4, Cardinality – 5

(iii) Write command to insert following data in the table:

ECode = 80015, Ename = “Aashifa” Sal = 43000

Answer – insert into HRDATA values(80015, “Aashifa”, 43000);

1

16.

What do you understand by Primary Key, Candidate Key and Alternate Key in a table? In the table given below, identify the Primary, candidate and alternate keys –

Rno	Stud_Name	Aadhar_no	UID	Admn_no	Class
1201	Arpita Kar	112235451254	2236121	2301	XII A
1202	Farishta Peter	365214529856	2236122	1407	XII B
1203	Janhvi Sinha	214532562144	2236123	803	XII B
1204	Shubham Sen	121136524521	2236124	510	XII A
1205	Brijesh Yadav	323354552155	2236125	102	XII C

Answer –

Candidate keys – All those key or key combinations in a table that can uniquely identify a record in a table is candidate key

Primary Key – A candidate key selected by the administrator to serve t,for he purpose of unique key is called a primary key.

Alternate key – All those candidate keys that could not become Primary key are alternate keys.

In the table –

Candidate keys – Rno, Aadhar_no, UID and Admn_no

Primary Key – Rno or any one from above

Alternate keys – All candidate keys except the one selected for primary key.

(1 mark each for definition and example)

OR

Explain any three aggregate functions of SQL with suitable example of each taking the following table into consideration –

Empno	Emp_Name	Department	Salary
E123	Ankush Das	Sales	35000
E034	Snigdha Sahu	Sales	35000
E245	Neeraj Kapoor	Finance	55000
E112	Shweta Jagtap	Marketing	45000
E089	Rekha Sao	HR	65000

Answer –

The following are the most commonly used SQL aggregate functions:

AVG – calculates the average of a set of values.

COUNT – counts rows in a specified table or view.

MIN – gets the minimum value in a set of values.

MAX – gets the maximum value in a set of values.

SUM – calculates the sum of values.

(2 marks for any two aggregate functions and 1 mark for correct example)

(Section - III)
(Q. no. 17 and 18, having 4 marks each with internal choices)

17. Consider the following tables Supplier and Consumer. Write SQL commands for the statements (a) to (d).

Supplier

SupplierID	SupplierName	SupplierAddress	Suppliercity
JR01	Rohit Bhalla	14, Floret Appt	Jaipur
PH02	Harish Nagar	A3, Gandhi Lane	Panjim
PS15	Subrat Ray	14/B, Surya Vihar	Panjim
JT50	Tina Chandran	12-H, Bank Colony	Jaipur

Consumer

C_ID	SupplierID	CName	CAddress	Ccity
C101	JR01	Varun Mishra	5, Central Avenue	Delhi
C342	PH02	Sonia Singh	116, Block A	Delhi
C112	JR01	Prabhu S	2A, Andheri East	Mumbai
C008	PS15	Abhishek Das	B5, CS Terminals	Panjim
C035	JT50	Rahul Jain	13,B Mayur Vihar	Mumbai

(a) To display the C_ID, Supplier name, Supplier Address, Consumer Name and Consumer Address for every Consumer

Answer –

Select C_ID, S.SupplierName, S.SupplierAddress, C.CName, C.CAddress from Supplier S, Consumer C where C.SupplierID=S.SupplierID;

1

(b) To display Consumer details in ascending order of CName

Answer –

Select * from Consumer order by CName;

1

(c) To display number of Consumers from each city

Answer –

select Ccity, count(*) from Consumer group by Ccity;

1

(d) To display the details of suppliers whose supplier city is 'Panjim'

Answer –

Select * from Supplier where SupplierCity = 'Panjim';

1

OR

Write the outputs of the SQL queries (i) to (iv) based on the relations Drink and Consumer given below:

Table: Drink

D_ID	DrinkName	Company	Price
AP01	Aam Panna	Haldiram	185.00
OS23	Orange Sqaush	Rasna	75.00
MP22	Mango pulp	Haldiram	190.00
LI12	Lichi	Real	125.00
LE02	Lemonade	Real	110.00

Table:Consumer

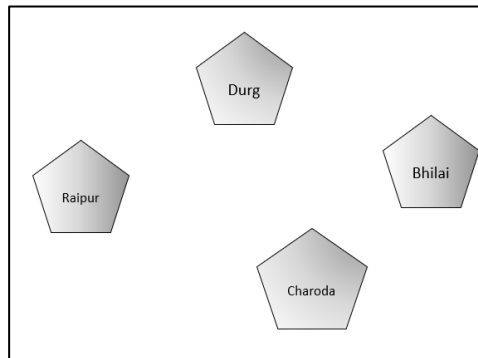
C_ID	ConsumerName	Address	D_ID
1	D Mart	Junwani, Durg	LI12
6	Rajesh Super Bazaar	A Market Sec-10	OS23
12	Shubham K Mart	Junwani, Durg	AP01
15	Big Bazaar	Surya Mall, Bhilai	LE02

- (i) SELECT count(DISTINCT Address) FROM Consumer;
Answer – 3
- (ii) SELECT Company, MAX(Price), MIN(Price), COUNT(*) from Drink GROUP BY Company;
Answer –
Haldiram 190.00 185.00 2
Rasna 75.00 75.00 1
Real 125.00 110.00 2
- (iii) SELECT Consumer.ConsumerName, Drink.DrinkName, Drink.Price FROM Drink, Consumer WHERE Consumer.D_ID = Drink.D_ID;
Answer –
D Mart Lichi 125.00
Rajesh Super Bazar Orange Squash 75.00
Shubham K Mart Aam Panna 185.00
Big Bazar Lemonade 110.00
- (iv) SELECT DrinkName from Drink where DrinkName like “-a%”;
Answer –
Aam Panna
Mango Pulp

1
1
1
1

18.

Dhanvridhhi Investment Pvt. Ltd. has four branches in a Campus, named Durg, Bhilai, Raipur and Charoda. Dhanvridhhi Investment Pvt. 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
Durg	Bhilai	30 m
Bhilai	Charoda	40 m
Charoda	Raipur	25 m
Durg	Raipur	150 m
Bhilai	Raipur	105 m
Durg	Charoda	60 m

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Office	No. of computers
Durg	40
Bhilai	80
Charoda	200
Raipur	60

- (i) Suggest the most suitable place (i.e., Block/Center) to install the server of this organization with a suitable reason.

Answer – Charoda, as there are more no. of systems and also 80-20 rule of network traffic.

- (ii) Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices?

Answer – Hub/Switch

- (iii) Suggest the placement of a Repeater in the network with justification.

Answer – Between Durg and Raipur, and also Bhilai and Raipur, as the distance is more than 100 m.

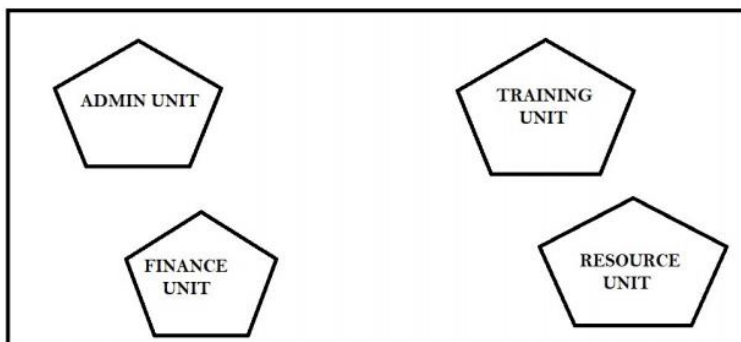
- (iv) The organization is planning to connect its new office in Delhi, which is more than 1250 km current location. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer.

Answer –

WAN, as the distance is more, hence WAN is suitable.

OR

“Ujjwal Patra” an NGO is planning to setup its new campus at Pondicherry for its web-based activities. The campus has four(04) UNITS as shown below:



Distances between above UNITs are given here's under:

Unit-1	Unit-2	Distance
Admin	Training	65 m
Admin	Resource	120 m
Admin	Finance	100 m
Finance	Training	60 m
Finance	Resource	40 m
Training	Resource	50 m

1

1

1

1

No. of Computers in various UNITS are:

Unit	No. of computers
Admin	150
Finance	25
Training	90
Resource	75

- (i) Suggest an ideal cable layout for connecting the above UNITS.
Any suitable layout **1**
- (ii) Which network device is used to connect the computers in all UNITS?
Answer – Hub/Switch **1**
- (iii) Suggest the placement of Repeater in the UNITS of above network.
Answer – Admin and Resource, and Admin and Finance **1**
- (iv) NGO is planning to connect its Regional Office at Chennai, Tamilnadu.
Which out of the following wired communication, will you suggest for a very high-speed connectivity?
(b) Twisted Pair cable (b) Ethernet cable (c) **Optical Fiber**
Answer – Optical Fiber **1**

-----XXXX-----