Series : %BAB%

SET-4

प्रश्न–पत्र कोड
Q.P. Code **91**

रोल नं.
Roll No. | | | | | | | | |

Candidates must write the Q.P. Code on the title page of the answer-book.

- Please check that this question paper contains **12** printed pages.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **13** questions.
- **Please write down the Serial Number of the question in the answer-book before attempting it.**
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the candidates will read the question paper only and will not write any answer on the answer-book during this period. *

COMPUTER SCIENCE

*Time allowed : **2** hours*

*Maximum Marks : **35***

General Isnstructions :

(i) *This question paper is divided into* ***3 Sections – A, B*** *and* ***C****.*

(ii) ***Section A****, consists of* ***7*** *questions* ***(1-7)****. Each question carries* ***2*** *marks.*

(iii) ***Section B****, consists of* ***3*** *questions* ***(8-10)****. Each question carries* ***3*** *marks.*

(iv) ***Section C****, consists of* ***3*** *questions* ***(11-13)****. Each question carries* ***4*** *marks.*

(v) *Internal choices have been given for question numbers –* ***7, 8*** *and* ***12****.*

SECTION – A

(Each question carries 2 marks)

1. "Stack is a linear data structure which follows a particular order in which the operations are performed." **2**

   What is the order in which the operations are performed in a Stack ?

   Name the List method/function available in Python which is used to remove the last element from a list implemented stack.

   Also write an example using Python statements for removing the last element of the list.

2. (i) Expand the following : **1**

   `VoIP, PPP`

   (ii) Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth technology to connect two devices. Which type of network (PAN/LAN/MAN/WAN) will be formed in this case ? **1**

3. Differentiate between the terms Attribute and Domain in the context of Relational Data Model. **2**

4. Consider the following SQL table MEMBER in a SQL Database CLUB : **2**

Table : **MEMBER**

M_ID	**NAME**	**ACTIVITY**
M1001	Amina	GYM
M1002	Pratik	GYM
M1003	Simon	SWIMMING
M1004	Rakesh	GYM
M1005	Avneet	SWIMMING

Assume that the required library for establishing the connection between Python and MYSQL is already imported in the given Python code. Also assume that DB is the name of the database connection for table MEMBER stored in the database CLUB.

Predict the output of the following code :

```
MYCUR = DB.cursor()
MYCUR.execute ("USE CLUB")
MYCUR.execute ("SELECT * FROM MEMBER WHERE ACTIVITY= 'GYM'  ")
R=MYCUR.fetchone()
for i in range (2) :
    R=MYCUR.fetchone()
    print (R[0], R[1], sep = "#")
```

5. Write the output of SQL queries (a) to (d) based on the table VACCINATION_DATA given below : **2**

TABLE : **VACCINATION_DATA**

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07-20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

(a) SELECT Name, Age FROM VACCINATION_DATA
WHERE Dose2 IS NOT NULL AND Age > 40;

(b) SELECT City, COUNT(*) FROM VACCINATION_DATA GROUP BY City;

(c) SELECT DISTINCT City FROM VACCINATION_DATA;

(d) SELECT MAX (Dosel), MIN (Dose2) FROM VACCINATION_DATA;

6. Write the output of SQL queries (a) and (b) based on the following two tables DOCTOR and PATIENT belonging to the same database : **2**

Table : **DOCTOR**

DNO	DNAME	FEES
D1	AMITABH	1500
D2	ANIKET	1000
D3	NIKHIL	1500
D4	ANJANA	1500

Table : **PATIENT**

PNO	PNAME	ADMDATE	DNO
P1	NOOR	2021-12-25	D1
P2	ANNIE	2021-11-20	D2
P3	PRAKASH	2020-12-10	NULL
P4	HARMEET	2019-12-20	D1

(a)
```
SELECT DNAME, PNAME FROM DOCTOR
NATURAL JOIN PATIENT ;
```

(b)
```
SELECT PNAME, ADMDATE, FEES
FROM PATIENT P, DOCTOR D
WHERE D.DNO = P.DNO AND FEES > 1000;
```

7. Differentiate between Candidate Key and Primary Key in the context of Relational Database Model. **2**

OR

Consider the following table PLAYER :

Table : **PLAYER**

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	42

(a) Identify and write the name of the most appropriate column from the given table PLAYER that can be used as a Primary key.

(b) Define the term Degree in relational data model. What is the Degree of the given table PLAYER ?

SECTION – B

(Each question carries 3 marks)

8. • Write the definition of a user defined function **`PushNV(N)`** which accepts a list of strings in the parameter **`N`** and **`pushes`** all strings which have no vowels present in it, into a list named **`NoVowel`**. **3**

• Write a program in Python to input 5 words and **`push`** them one by one into a list named **`All`**.

The program should then use the function **`PushNV()`** to create a stack of words in the list **`NoVowel`** so that it stores only those words which do not have any vowel present in it, from the list **`All`**. Thereafter, **`pop`** each word from the list **`NoVowel`** and display the popped word. When the stack is empty display the message **`"EmptyStack"`**.

For example :

If the Words accepted and pushed into the list **`All`** are

```
['DRY', 'LIKE', 'RHYTHM', 'WORK', 'GYM']
```

Then the stack **NoVowel** should store

```
['DRY', 'RHYTHM', 'GYM']
```

And the output should be displayed as

```
GYM RHYTHM DRY EmptyStack
```

OR

- Write the definition of a user defined function **Push3_5(N)** which accepts a list of integers in a parameter **N** and **pushes** all those integers which are **divisible by 3 or divisible by 5** from the list **N** into a list named **Only3_5**.
- Write a program in Python to input 5 integers into a list named **NUM**.

  The program should then use the function **Push 3_5()** to create the stack of the list **Only3_5**. Thereafter **pop** each integer from the list **Only3_5** and display the popped value. When the list is empty, display the message **"StackEmpty".**

For example :

If the integers input into the list **NUM** are :

```
[10, 6, 14, 18, 30]
```

Then the stack **Only3_5** should store

```
[10, 6, 18, 30]
```

And the output should be displayed as

```
30  18  6  10 StackEmpty
```

9. (i) A SQL table **ITEMS** contains the following columns : **1**

INO, INAME, QUANTITY, PRICE, DISCOUNT

Write the SQL command to remove the column **DISCOUNT** from the table.

(ii) Categorize the following SQL commands into **DDL** and **DML** : **2**

CREATE, UPDATE, INSERT, DROP

10. Rohan is learning to work upon Relational Database Management System (RDBMS) application. Help him to perform following tasks : **3**

(a) To open the database named **"LIBRARY"**.

(b) To display the names of all the tables stored in the opened database.

(c) To display the structure of the table **"BOOKS"** existing in the already opened database **"LIBRARY"**.

SECTION – C

(Each question carries 4 marks)

11. Write SQL queries for (a) to (d) based on the tables PASSENGER and FLIGHT given below : **4**

Table : **PASSENGER**

PNO	NAME	GENDER	FNO
1001	Suresh	MALE	F101
1002	Anita	FEMALE	F104
1003	Harjas	MALE	F102
1004	Nita	FEMALE	F103

Table : **FLIGHT**

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2021-12-25	4500
F102	MUMBAI	BENGALURU	2021-11-20	4000
F103	DELHI	CHENNAI	2021-12-10	5500
F104	KOLKATA	MUMBAI	2021-12-20	4500
F105	DELHI	BENGALURU	2021-01-15	5000

(a) Write a query to change the fare to 6000 of the flight whose FNO is F104.

(b) Write a query to display the total number of MALE and FEMALE PASSENGERS.

(c) Write a query to display the **NAME**, corresponding **FARE** and **F_DATE** of all PASSENGERS who have a flight to **START** from DELHI.

(d) Write a query to delete the records of flights which end at Mumbai.

12. (i) Differentiate between Bus Topology and Tree Topology. Also, write one advantage of each of them. **2**

OR

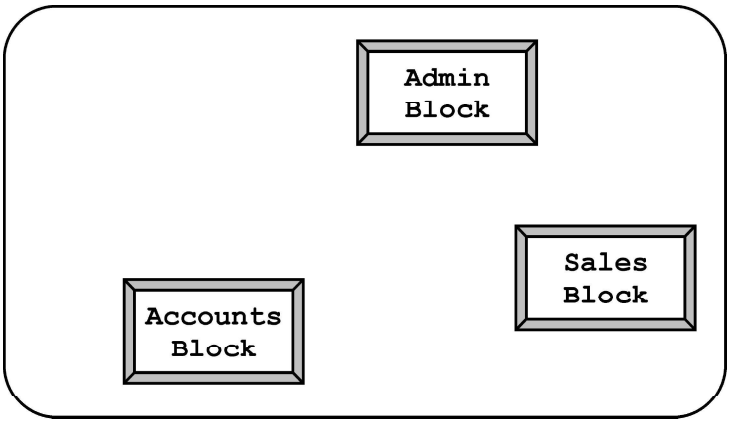
Differentiate between HTML and XML.

(ii) What is a web browser ? Write the names of any two commonly used web browsers. **2**

13. Galaxy Provider Ltd. is planning to connect its office in Texas, USA with its branch at Mumbai. The Mumbai branch has 3 Offices in three blocks located at some distance from each other for different operations – ADMIN, SALES and ACCOUNTS. **4**

As a network consultant, you have to suggest the best network related solutions for the issues/problems raised in (a) to (d), keeping in mind the distances between various locations and other given parameters.

Layout of the Offices in the Mumbai branch :



Shortest distances between various locations :

ADMIN Block to SALES Block	300 m
SALES Block to ACCOUNTS Block	175 m
ADMIN Block to ACCOUNTS Block	350 m
MUMBAI Branch to TEXAS Head Office	14000 km

Number of Computers installed at various locations are as follows :

ADMIN Block	255
ACCOUNTS Block	75
SALES Block	30
TEXAS Head Office	90

(a) It is observed that there is a huge data loss during the process of data transfer from one block to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one block office with another to refresh the signal and forward it ahead.

(i) MODEM (ii) ETHERNET CARD

(iii) REPEATER (iv) HUB

(b) Which hardware networking device out of the following, will you suggest to connect all the computers within each block ?

(i) SWITCH (ii) MODEM

(iii) REPEATER (iv) ROUTER

(c) Which service/protocol out of the following will be most helpful to conduct live interactions of employees from Mumbai Branch and their counterparts in Texas ?

(i) FTP (ii) PPP

(iii) SMTP (iv) VolP

(d) Draw the cable layout (block to block) to efficiently connect the three offices of the Mumbai branch.

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Senior Secondary School Term II Examination, 2022

Marking Scheme – COMPUTER SCIENCE (SUBJECT CODE – 083)

(Series: %BAB%, SET - 4, PAPER CODE –91)

General Instructions :

1. You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2. **"Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, Evaluation done and several other aspects. Its' leakage to the public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in News Paper/Website etc may invite action under IPC."**
3. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and marks be awarded to them. In class-XII, while evaluating two competency based questions, please try to understand the given answer and even if the reply is not from the marking scheme but correct competency is enumerated by the candidate, marks should be awarded.**
4. The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
5. Evaluators will mark(√) wherever the answer is correct. For wrong answer 'X' be marked. Evaluators will not put the right kind of mark while evaluating which gives an impression that the answer is correct and no marks are awarded. **This is the most common mistake which evaluators are committing.**
6. If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
7. If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
8. If a student has attempted an extra question, the answer of the question deserving more marks should be retained and the other answer scored out.
9. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
10. A full scale of marks **35** (example **0-35** marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
11. Every examiner has to necessarily do evaluation work for full working hours i.e. 8 hours every day and evaluate 30 answer books per day in main subjects and 35 answer books per day in other subjects (Details are given in Spot Guidelines). This is in view of the reduced syllabus and number of questions in the question paper.

12. Ensure that you do not make the following common types of errors committed by the Examiner in the past :-
    - Leaving the answer or part thereof unassessed in an answer book.
    - Giving more marks for an answer than assigned to it.
    - Wrong totaling of marks awarded on a reply.
    - Wrong transfer of marks from the inside pages of the answer book to the title page.
    - Wrong question wise totaling on the title page.
    - Wrong totaling of marks of the two columns on the title page.
    - Wrong grand total.
    - Marks in words and figures not tallying.
    - Wrong transfer of marks from the answer book to online award list.
    - Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answers.)
    - Half or a part of the answer was marked correct and the rest as wrong, but no marks awarded.
13. While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0) Marks.
14. Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
15. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.
16. Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
17. The Board permits candidates to obtain a photocopy of the Answer Book on request in an RTI application and also separately as a part of the re-evaluation process on payment of the processing charges.

Specific Instructions:

- **The answers given in the marking scheme are SUGGESTIVE. Examiners are requested to award marks for all alternative correct Solutions/Answers conveying a similar meaning.**
- **All programming questions have to be answered with respect to Python only.**
- **In Python, ignore case sensitivity for identifiers/ Variables / Functions.**
- **In Python indentation is mandatory, however, the number of spaces used for indenting may vary.**
- **In SQL related questions - both ways of text/character entries should be acceptable for Example: "AMAR" and 'amar' both are acceptable.**
- **In SQL related questions - all date entries should be acceptable for Example: 'YYYY-MM-DD', 'YY-MM-DD', 'DD-Mon-YY', "DD/MM/YY", 'DD/MM/YY', "MM/DD/YY", 'MM/DD/YY' and {MM/DD/YY} are correct.**
- **In SQL related questions - semicolon should be ignored for terminating the SQL statements.**
- **In SQL related questions, ignore case sensitivity.**

Maximum Marks: 35 Time: 2 hours

General Instructions :

i. This question paper is divided into **3 Sections – A, B and C**
ii. **Section A**, consists of **7** questions **(1-7)**. Each question carries **2** marks.
iii. **Section B**, consists of **3** questions **(8-10)**. Each question carries **3** marks.
iv. **Section C**, consists of **3** questions **(11-13)**. Each question carries **4** marks.
v. Internal choices have been given for question numbers **7**, **8** and **12**.

		Section -A **(Each question carries 2 marks)**	
1.		"Stack is a linear data structure which follows a particular order in which the operations are performed." What is the order in which the operations are performed in a Stack ? Name the List method/function available in Python which is used to remove the last element from a list implemented stack. Also write an example using Python statements for removing the last element of the list.	2
	Ans	**Order of operations performed in a Stack is** **LIFO (Last In First Out)** **The List method in Python to remove the last element from a list implemented stack is** **pop()** **OR** **pop(-1)** **OR** **pop** **Example:** **L=[10,20,30,40]** **L.pop() OR L.pop(-1)** **OR** **Any other appropriate example**	
		(1 mark for writing correct order) *(½ mark for writing pop or any other correct method/function)* *(½ mark for writing correct Python code of an example)* *OR* *(1 mark for writing correct order)* *(1 mark for correct Python statement to demonstrate the pop() function)* *(Note: FILO - First In Last Out, may also be considered)*	

2.	(i)	Expand the following : **VoIP, PPP**	1
	Ans	**VoIP : Voice over Internet Protocol** **PPP : Point to Point Protocol**	
		(½ mark each for writing correct expansion)	
	(ii)	Riya wants to transfer pictures from her mobile phone to her laptop. She uses Bluetooth technology to connect two devices. Which type of network (PAN/LAN/MAN/WAN) will be formed in this case?	1
	Ans	**PAN/ Personal Area Network**	
		(1 mark for correct type of network)	
3.		Differentiate between the terms Attribute and Domain in the context of Relational Data Model.	2
	Ans	**Attribute** — **The column/field of a table/relation is known as an attribute.** **Domain** — **It is a set of permissible values from which attributes can take/obtain required value.** **For example:** **Table: Student** **Name, Class and Marks are attributes** — **The attribute class has domain of X, XII**	
		(1 mark each for writing any correct explanation of Attribute and Domain)	
4.		Consider the following SQL table MEMBER in a SQL Database CLUB:	2

Table: MEMBER

M_ID	NAME	ACTIVITY
M1001	Amina	GYM
M1002	Pratik	GYM
M1003	Simon	SWIMMING
M1004	Rakesh	GYM
M1005	Avneet	SWIMMING

Assume that the required library for establishing the connection between Python and MYSQL is already imported in the given Python code. Also assume that DB is the name of the database connection for table MEMBER stored in the database CLUB.

Predict the output of the following code:

```
MYCUR = DB.cursor()
MYCUR.execute("USE CLUB")
MYCUR.execute("SELECT * FROM MEMBER WHERE ACTIVITY='GYM'")
R=MYCUR.fetchone()
for i in range(2):
   R=MYCUR.fetchone()
   print(R[0], R[1], sep ="#")
```

Ans

M1002#Pratik
M1004#Rakesh

(1 mark for writing each correct line of output)

(Note: Deduct ½ mark for missing # or writing the output in a single line OR writing any additional line along with the correct output)

5. Write the output of the SQL queries (a) to (d) based on the table **VACCINATION_DATA** given below: 2

TABLE: **VACCINATION_DATA**

VID	Name	Age	Dose1	Dose2	City
101	Jenny	27	2021-12-25	2022-01-31	Delhi
102	Harjot	55	2021-07-14	2021-10-14	Mumbai
103	Srikanth	43	2021-04-18	2021-07-20	Delhi
104	Gazala	75	2021-07-31	NULL	Kolkata
105	Shiksha	32	2022-01-01	NULL	Mumbai

(a)

```
SELECT Name, Age FROM VACCINATION_DATA
WHERE Dose2 IS NOT NULL AND Age > 40;
```

Ans

Name	Age
Harjot	55
Srikanth	43

(½ mark for the correct output)
(Note: Ignore column heading of the output and order of the output rows)

(b)

```
SELECT City, COUNT(*) FROM VACCINATION_DATA
GROUP BY City;
```

	Ans	**City** | **COUNT(*)** **Delhi** | **2** **Mumbai** | **2** **Kolkata** | **1**	
		(½ mark for the correct output) *(Note: Ignore column heading of the output and order of the output rows)*	
	(c)	`SELECT DISTINCT City FROM VACCINATION_DATA;`	
	Ans	**City** **Delhi** **Mumbai** **Kolkata**	
		(½ mark for the correct output) *(Note: Ignore column heading of the output and order of the output rows)*	
	(d)	`SELECT MAX(Dose1),MIN(Dose2)FROM VACCINATION_DATA;`	
	Ans	**MAX(Dose1)** | **MIN(Dose2)** **2022-01-01** | **2021-07-20**	
		(½ mark for the correct output) *(Note: Ignore column heading of the output and order of the output rows)*	
6		Write the output of SQL queries (a) and (b) based on the following two tables DOCTOR and PATIENT belonging to the same database : Table: **DOCTOR** **DNO** | **DNAME** | **FEES** D1 | AMITABH | 1500 D2 | ANIKET | 1000 D3 | NIKHIL | 1500 D4 | ANJANA | 1500 Table: **PATIENT** **PNO** | **PNAME** | **ADMDATE** | **DNO** P1 | NOOR | 2021-12-25 | D1 P2 | ANNIE | 2021-11-20 | D2 P3 | PRAKASH | 2020-12-10 | NULL P4 | HARMEET | 2019-12-20 | D1	2
	(a)	`SELECT DNAME, PNAME FROM DOCTOR` `NATURAL JOIN PATIENT ;`	

	Ans	**DNAME** | **PNAME** **AMITABH** | **NOOR** **ANIKET** | **ANNIE** **AMITABH** | **HARMEET**	
		(1 mark for writing correct output) *Note:* *Deduct ½ mark for any additional row along with the correct rows* *Ignore column heading of the output and order of the output rows*	

	(b)	`SELECT PNAME, ADMDATE, FEES`
		`FROM PATIENT P, DOCTOR D`
		`WHERE D.DNO = P.DNO AND FEES > 1000;`	

	Ans	**PNAME** | **ADMDATE** | **FEES** **NOOR** | **2021-12-25** | **1500** **HARMEET** | **2019-12-20** | **1500**	
		(1 mark for writing correct output) *Note:* *Deduct ½ mark for any additional row along with the correct rows* *Ignore column heading of the output and order of the output rows*	
7.		Differentiate between Candidate Key and Primary Key in the context of Relational Database Model.	2
	Ans	**A table may have more than one or a combination of attribute(s)that identifies a tuple uniquely. All such attribute(s) are known as Candidate Keys.** **Out of all the Candidate keys, the most appropriate one, which is used for unique identification of the Tuples, is called the Primary Key.** **Example:** Table: **BANK** **ACNO** | **NAME** | **PHONE** 10001 | RISHABH | 9810876677 10031 | ARNAV | 9810876123 10064 | ARNAV | 9810875577 10076 | GURSHARAN | 9810871144 **Candidate Keys: ACNO, PHONE** **Primary Key: ACNO**	
		(2 marks for correct explanation OR example given to differentiate the keys) *OR* *(1 mark for writing only the correct explanation/example of candidate key)* *(1 mark for writing only the correct explanation/example of primary key)*	

		OR	
		Consider the following table PLAYER : Table: **PLAYER** **PNO** | **NAME** | **SCORE** P1 | RISHABH | 52 P2 | HUSSAIN | 45 P3 | ARNOLD | 23 P4 | ARNAV | 18 P5 | GURSHARAN | 42	2
	(a)	Identify and write the name of the most appropriate column from the given table PLAYER that can be used as a Primary key.	
	Ans	**PNO**	
		(1 mark for mentioning PNO) *(Note: Don't deduct marks, if any additional column name is also mentioned along with PNO)*	
	(b)	Define the term Degree in relational data model. What is the Degree of the given table PLAYER ?	
	Ans	**Total number of columns/attributes in a table/relation is known as its Degree.** **The Degree of the given table is 3.**	
		(½ mark for writing/explaining with example the correct meaning of Degree) *(½ mark writing correct Degree of the given table)*	
		Section -B **(Each question carries 3 marks)**	
8.		• Write the definition of a user defined function **PushNV(N)** which accepts a list of strings in the parameter **N** and **pushes** all strings which have no vowels present in it, into a list named **NoVowel**. • Write a program in Python to input 5 Words and **push** them one by one into a list named **All**. The program should then use the function **PushNV()** to create a stack of words in the list **NoVowel** so that it stores only those words which do not have any vowel present in it, from the list **All**. Thereafter, **pop** each word from the list **NoVowel** and display the popped word. When the stack is empty, display the message **"EmptyStack"**. For example: If the Words accepted and pushed into the list **All** are **['DRY', 'LIKE', 'RHYTHM', 'WORK', 'GYM']**	3

		Then the stack **NoVowel** should store **['DRY', 'RHYTHM', 'GYM']** And the output should be displayed as **GYM RHYTHM DRY EmptyStack**	
	Ans	**def PushNV(N):** **for W in N :** **for C in W :** **if C.upper() in 'AEIOU':** **break** **else:** **NoVowel.append(W)** **All=[]** **NoVowel=[]** **for i in range(5) :** **All.append(input('Enter a Word: '))** **PushNV(All)** **while NoVowel :** **print(NoVowel.pop(), end=' ')** **else :** **print('EmptyStack')** **OR** **Any other correct equivalent code**	
		(½ mark for checking vowels correctly, ignore case sensitivity) *(½ mark for pushing strings into the stack NoVowel)* *(½ mark for reading 5 words from the users)* *(½ mark for assigning 5 words into All)* *(½ mark for writing correct code to pop and display the words from NoVowel)* *(½ mark for writing correct code to check empty stack and display the message 'EmptyStack')*	
		OR	
		• Write the definition of a user defined function **Push3_5(N)** which accepts a list of integers in a parameter **N** and **pushes** all those integers which are **divisible by 3 or divisible by 5** from the list **N** into a list named **Only3_5**. • Write a program in Python to input 5 integers into a list named **NUM**. The program should then use the function **Push3_5()** to create the stack of the list **Only3_5**. Thereafter **pop** each integer from the list **Only3_5** and display the popped value. When the list is empty, display the message **"StackEmpty"**.	

		For example: If the integers input into the list **NUM** are : **[10,6,14,18,30]** Then the stack **Only3_5** should store **[10,6,18,30]** And the output should be displayed as **30 18 6 10 StackEmpty**	
	Ans	**def Push3_5(N):** **for i in N :** **if i%3==0 or i%5==0 :** **Only3_5.append(i)** **NUM=[]** **Only3_5=[]** **for i in range(5):** **NUM.append(int(input('Enter an Integer: ')))** **Push3_5(NUM)** **while Only3_5 :** **print(Only3_5.pop(), end=' ')** **else :** **print('StackEmpty')** **OR** **Any other correct equivalent code**	
		(½ mark for checking divisibility correctly) *(½ mark for pushing integers into the stack Only3_5)* *(½ mark for reading 5 integers from the users)* *(½ mark for assigning those 5 integers into NUM)* *(½ mark for writing correct code to pop and display the integers from Only3_5)* *(½ mark for writing correct code to check empty stack and display the message 'StackEmpty')*	
9.	(i)	A SQL table **ITEMS** contains the following columns: **INO, INAME, QUANTITY, PRICE, DISCOUNT** Write the SQL command to remove the column **DISCOUNT** from the table.	1
	Ans	**ALTER TABLE ITEMS** **DROP COLUMN DISCOUNT;** **OR** **ALTER TABLE ITEMS** **DROP DISCOUNT;**	
		(½ mark for writing ALTER TABLE ITEMS) *(½ mark for writing DROP COLUMN DISCOUNT OR DROP DISCOUNT)*	

	(ii)	Categorize the following SQL commands into **DDL** and **DML** : CREATE, UPDATE, INSERT, DROP	2
	Ans	DDL Commands : **CREATE, DROP** DML Commands : **INSERT, UPDATE**	
		(½ Mark each for writing the correct DDL/DML commands)	
10.		Rohan is learning to work upon Relational Database Management System (RDBMS) application. Help him to perform following tasks:	3
	(a)	To open the database named **"LIBRARY"**.	
	Ans	**USE LIBRARY ;**	
		(1 Mark for writing correct SQL command)	
	(b)	To display the names of all the tables stored in the opened database.	
	Ans	**SHOW TABLES;** **OR** **SHOW TABLES FROM LIBRARY;**	
		(1 Mark for writing correct SQL command)	
	(c)	To display the structure of the table **"BOOKS"** existing in the already opened database **"LIBRARY"**.	
	Ans	**DESCRIBE BOOKS ;** **OR** **DESC BOOKS ;**	
		(1 Mark for writing correct SQL command)	
		Section - C **(Each question carries 4 marks)**	
11.		Write SQL queries for (a) to (d) based on the tables PASSENGER and FLIGHT given below:	4

Table : **PASSENGER**

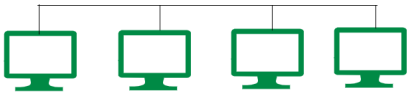
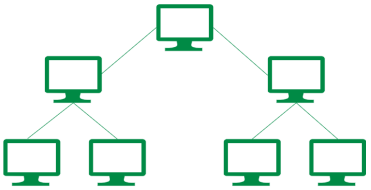
PNO	NAME	GENDER	FNO
1001	Suresh	MALE	F101
1002	Anita	FEMALE	F104
1003	Harjas	MALE	F102
1004	Nita	FEMALE	F103

Table: **FLIGHT**

FNO	START	END	F_DATE	FARE
F101	MUMBAI	CHENNAI	2021-12-25	4500
F102	MUMBAI	BENGALURU	2021-11-20	4000
F103	DELHI	CHENNAI	2021-12-10	5500
F104	KOLKATA	MUMBAI	2021-12-20	4500
F105	DELHI	BENGALURU	2021-01-15	5000

	(a)	Write a query to change the fare to 6000 of the flight whose FNO is F104.	
	Ans	**UPDATE FLIGHT** **SET FARE=6000 WHERE FNO="F104";**	
		(½ Mark for writing **UPDATE FLIGHT***)* *(½ Mark for writing* **SET FARE=6000 WHERE FNO="F104"***)*	
	(b)	Write a query to display the total number of MALE and FEMALE PASSENGERS.	
	Ans	**SELECT GENDER, COUNT(*) FROM PASSENGER** **GROUP BY GENDER;** **OR** **SELECT COUNT(*) FROM PASSENGER** **GROUP BY GENDER;**	
		(½ mark for writing SELECT part correctly) *(½ mark for writing GROUP BY GENDER;)* ***OR*** *(any alternate correct uses of COUNT() is acceptable)*	
	(c)	Write a query to display the **NAME**, corresponding **FARE** and **F_DATE** of all PASSENGERS who have a flight to **START** from DELHI.	
	Ans	**SELECT NAME, FARE, F_DATE FROM PASSENGER P, FLIGHT F** **WHERE F.FNO= P.FNO AND START = 'DELHI';** **OR** **SELECT NAME, FARE, F_DATE FROM PASSENGER, FLIGHT** **WHERE PASSENGER.FNO= FLIGHT.FNO AND START = 'DELHI';** **OR** **SELECT NAME, FARE, F_DATE FROM PASSENGER, FLIGHT** **WHERE PASSENGER.FNO= FLIGHT.FNO AND START LIKE 'DELHI';** **OR** **SELECT NAME,FARE,F_DATE FROM PASSENGER NATURAL JOIN FLIGHT** **WHERE START = 'DELHI';** **OR** **Any other correct and equivalent query**	
		(½ mark for writing SELECT - FROM part correctly) *(½ mark for writing WHERE part correctly)*	
	(d)	Write a query to delete the records of flights which end at Mumbai.	
	Ans	**DELETE FROM FLIGHT** **WHERE END = "MUMBAI";** **OR** **DELETE FROM FLIGHT** **WHERE END LIKE "MUMBAI";**	
		(½ mark for writing DELETE FROM FLIGHT) *(½ mark for writing WHERE part correctly)*	

12.	(i)	Differentiate between Bus Topology and Tree Topology. Also, write one advantage of each of them.	2
	Ans		

Bus Topology	Tree Topology
	
In bus topology, each communicating device connects to a single transmission medium, known as bus.	It is a hierarchical topology, in which there are multiple branches and each branch can have one or more basic topologies like star, ring and bus.
Advantage: It is very cost-effective as compared to other network topologies.	**Advantage:** It is easier to set-up multi-level plans for the network.

OR
Any other correct difference/definition/advantages

(1 Mark for mentioning any one correct difference between the topologies)
(½ mark each for writing any one advantage of Bus and Tree Topologies)

OR

(½ mark each for conveying correct understanding of Bus and Tree Topology using/not using diagram)
(½ mark each for writing any one advantage of Bus and Tree Topologies)

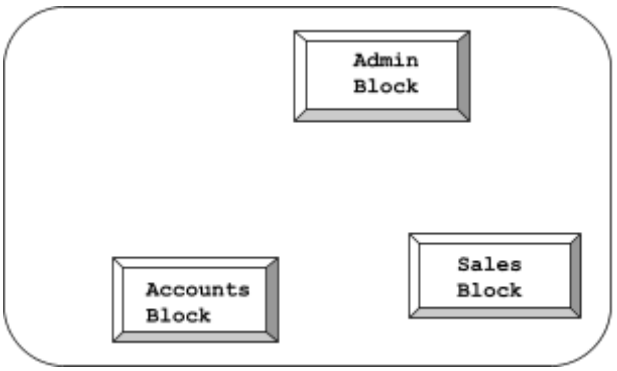
OR

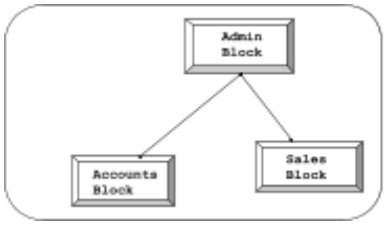
Differentiate between HTML and XML.

Ans

HTML	XML
It stands for HyperText Markup Language.	It stands for eXtensible Markup Language.
It contains predefined tags which are used to design webpages.	It contains user defined tags to describe and store the data.

OR
Any other valid difference/characteristic

		(Full 2 Marks for writing any one correct difference between HTML and XML) ***OR*** *(1 Mark for writing correct explanation of HTML)* ***OR*** *(½ Mark for writing full form of HTML)* *(1 Mark for writing correct explanation of XML)* ***OR*** *(½ Mark for writing full form of XML)*	
	(ii)	What is a web browser ? Write the names of any two commonly used web browsers.	2
	Ans	**A Web browser is a software/tool, which allows us to view/access the content of WebPages.** **OR** **It is a Client software program that is used to access various kinds of Internet resources using HTTP.** **Examples :** **Google Chrome, Microsoft Edge, Mozilla Firefox, Apple Safari, Opera, Chromium, etc. (ANY TWO)**	
		(1 Mark for writing correct explanation of Web-Browser) *(½ Mark for writing each correct name of two Web-Browsers)*	
13.		Galaxy Provider Ltd. is planning to connect its office in Texas, USA with its branch at Mumbai. The Mumbai branch has 3 Offices in three blocks located at some distance from each other for different operations – ADMIN, SALES and ACCOUNTS. As a network consultant, you have to suggest the best network related solutions for the issues/problems raised in (a) to (d), keeping in mind the distances between various locations and other given parameters. Layout of the Offices in the Mumbai branch:  Shortest distances between various locations: ADMIN Block to SALES Block — 300 m SALES Block to ACCOUNTS Block — 175 m ADMIN Block to ACCOUNTS Block — 350 m MUMBAI Branch to TEXAS Head Office — 14000 km	4

		Number of Computers installed at various locations are as follows: ADMIN Block: 255 ACCOUNTS Block: 75 SALES Block: 30 TEXAS Head Office: 90	
	(a)	It is observed that there is a huge data loss during the process of data transfer from one block to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one block office with another to refresh the signal and forward it ahead. (i) MODEM (ii) ETHERNET CARD (iii) REPEATER (iv) HUB	
	Ans	**(iii) REPEATER**	
		(1 Mark for correct identification of the Networking Device)	
	(b)	Which hardware networking device out of the following, will you suggest to connect all the computers within each block ? (i) SWITCH (ii) MODEM (iii) REPEATER (iv) ROUTER	
	Ans	**(i) SWITCH**	
		(1 Mark for correct identification of the Networking Device)	
	(c)	Which service/protocol out of the following will be most helpful to conduct live interactions of employees from Mumbai Branch and their counterparts in Texas ? (i) FTP (ii) PPP (iii) SMTP (iv) VoIP	
	Ans	**(iv) VoIP**	
		(1 Mark for correct identification of the service/protocol)	
	(d)	Draw the cable layout (block to block) to efficiently connect the three offices of the Mumbai branch.	
	Ans	 **OR any alternate cable layout**	
		(1 Mark for drawing correct cable layout)	