Pratap Public School, Karnal

Pre-Board Examination – 2021-22

Class-XII

Subject – Computer Science (083)

Time Allowed: 2 Hours   **Maximum Marks: 35**

General Instructions:

1. The question paper is divided into 3 sections – A, B and C.

2. Section A consists of 7 questions (1–7). Each question carries 2 marks.

3. Section B consists of 3 questions (8–10). Each question carries 3 marks.

4. Section C consists of 3 questions (11–13). Each question carries 4 marks.

5. Internal choices have been given for question numbers 1, 3, 8 and 12.

Section A

Each question carries 2 marks

1. What is a stack? Write two operations that can be performed on the stack.   2

2. (i) Expand the following terms: 1

   VoIP, NIC

   (ii) Which device is used to regenerate the weak signals for long-distance transmission?   1

3. Consider a table 'Online_Class' with the following structure: 2

   Meeting_Id   Date_of_Class Student_Name   Charges

   121100991   2022-01-12   Kavya Sethi   500.00

   (i) Identify the data types of Date_of_Class and Charges columns.
   (ii) If a column 'passcode' contains only 4 letters password information like '1#a4' then
       out of char orvarchar, which data type is suitable for this column. Justify your answer.

4. What are the different parameters in connect ( ) function of mysql.connector?   2

5. Write the output of the queries (i) to (iv) based on the table Product given below: 2

PId	P_Name	P_Price	P_Qty	Date_Of_Purchase
P001	Keyboard	800	3	2022-01-01
P002	Mouse	380	6	2021-12-23
P003	Speaker	1800	3	2022-01-01
P004	Headphone	1000	6	2021-10-02
P005	Stylus	3000	2	2022-01-19

(i) Select P_Name, P_Price from Product Where P_Price>1500;

(ii) Select PId, P_Name, P_Price * P_Qty from Product Where P_Name Like '%e';

(iii) Select Max(Date_Of_Purchase) from Product Where P_Price>500;

(iv) Select Sum(P_Price) from Product Where P_Price * P_Qty >3000;

6. (i) Which command is used to create a database in SQL?   1

(ii) How will you calculate columns and rows in a cross join?   1

7. Consider the table Employee with the following records: 2

Emp_ID	Emp_Name	Designation	Salary	Date_of_Joining
E101	Kanishk Arya	Manager	80000	2010-09-01
E102	Shuchi Sharma	Marketing Head	75000	2012-10-10
E103	Simran Gupta	Accounts Head	72000	2015-03-05
E104	Deepak Malhotra	Sales Head	55000	2018-02-09

(i) What could be the possible reason when inserting a new row using the following command gives anerror? Justify your answer.

Insert Into Employee Values ('E104', 'Jai Gupta', 'Manager', 80000, '2020-12-10');

(ii) What would be the cardinality and degree of the table when 3 more rows are added to the table?

OR

Consider the table PF_Details and answer the following questions:

PF_No	Date_of_Birth	email-id	Emp_ID
12255	1990-09-09	ka200@gmail.com	E101
13366	1991-10-08	shuch100@gmail.com	E102
11188	1994-01-02	simran2000@yahoo.com	E103
55599	1997-02-09	Deepak_500@gmail.com	E104

(i) iIdentifY the Primary and Foreign keys of table PF_Details if the Employee table given above is linked tothis table.

(ii) Can we delete the record of any employee from the table PF_Details?

Section – B
Each question carries 3 marks

8. Pankaj has to create a record of books containing BookNo, BookName and BookPrice. Write a user-defined function to create a stack and perform the following operations: 3
   - Input the Book No, BookName and BookPrice from the user and Push into the stack.
   - Display the status of stack after each insertion.

OR

Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers divisible by 3 into a stack implemented using a list. Display the stack if it has at least one element, otherwise display appropriate error message.

9. (i) A table Voter_list is created with the following columns: 1

$$V\_ID, V\_Name, V\_Address, V\_Age, V\_AreaCode, V\_Gender, V\_Phone\_No$$

Write an SQL command to delete column V_Phone_No from the table Voter_list.

(ii) Differentiate between Alter and Update commands with the help of examples. 2

10. Rashmi has to create a table in SQL to store the records of students and their projects submissioninformation. The structure of the table Project_Info is: 3

Table: **Project_Info**

Field Name	Data Type	Size	Remarks
Stud_Roll_No	Integer	8	
Name	Varchar	30	NOT NULL
Project_Name	Varchar	35	
No_of_Students	Integer	3	

Help Rashmi to complete the following tasks:

(i) To create the table Project_Info.

(ii) She has forgotten to add the Primary key to this table. Write a command to add Primary key to columnStud_Roll_No.

Section C
Each question carries 4 marks

11. Consider the following tables Activity and Coach. Write SQL commands for the statements (i) to (iv).

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Table : **Activity**

ACode	Activity_Name	Participant_Num	Prize_Money	Scheduled_date
1001	Relay 100x 4	16	10000	2022-01-23
1002	High Jump	10	12000	2022-01-24
1003	Shot Put	12	8000	2022-01-25
1005	Long Jump	12	9000	2022-01-27
1008	Discus Throw	10	15000	2022-01-29

Table: **Coach**

PCode	Name	ACode
1	Varun Kumar	1001
2	Sreeja Gupta	1008
3	Praveen Kumar	1001
4	Suman Kumari	1003

(i) To display the name of all activities with their Acodes in descending order.

(ii) To display the sum of PrizeMoney for each of the number of participants group-wise.

(iii) To display the content of the Activity table where Scheduled_date is earlier than 2022-02-26 in ascending order of Participant_Num.

(iv) To display Participant_Num from Activity table without repetition.

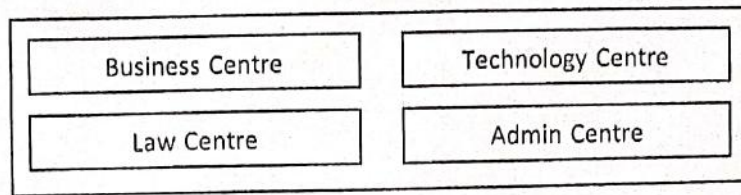12. (i) Differentiate between Bus topology and Star topology.

2

OR

Define the following terms:

Web browser, Protocols

(ii) Differentiate between Client-Server and Peer-to-Peer networks.

2

13. Bright Study University is setting up its academic centres in Gurugram and planning to set up a network. The university has 3 academic centres and one administration centre as shown in the diagram given below:

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Business Centre	Technology Centre
Law Centre	Admin Centre

Distance between various centres:

Business Centre	Law Centre	60 m
Law Centre	Technology Centre	90 m
Law Centre	Admin Centre	115 m
Business Centre	Technology Centre	40 m
Business Centre	Admin Centre	45 m
Technology Centre	Admin Centre	25 m

The number of computers in each block is as follows:

Business Centre	25
Technology Centre	55
Admin Centre	130
Law Centre	35

(i) Suggest and draw a cable layout to efficiently connect various centres within the university.

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

(iii) Name the centre where the server is to be installed. Justify your answer.

(iv) The university is planning to connect its admin office in the closest big city, which is more than 350 km from the university. Which type of network out of LAN, MAN or WAN will be formed? Justify your answer.