Time: 3 Hours   MM: 70

Instructions: This question paper is divided into two sections namely A and B. Section A contains eighteen questions having one mark each. Section B contains questions having different marking. All the questions are compulsory.

Section A(18x1=18)

Q1: In a table employee, a column **'occupation'** contains many duplicate values. Which keyword among the following would you use if wish to list of only different values?

  A. unique   B. Distinct   C. RemoveDuplicate   D. both A and B

Q2: Identify Single Row functions of MySQL amongst the following :

  i. TRIM ()   ii. MAX()   iii. COUNT(*)   iv. ROUND()

  A. i,ii and iii   B. i,ii and iv   C. only i and iv   D. only iii

Q3: Which is a join condition that contains an equality operator?

  A. Cartesian product   B. Equi Join   C. both A and B D. None of these

Q4: Which of the following is true about **HAVING** clause?

  A. Acts exactly like a where clause   B. Acts like a where clause on groups of rows rather than individual rows   C. Acts like a where clause on rows rather than columns.   D All of these

Q5: What will be returned by the given query?

  SELECT ROUND(153.69,1);

  A. 153.60   B. 153.70   C. 153.00   D. 153.7

Q6: Which of the following statements is not true for the update command?

  A. In the absence of where clause , it updates all the records of a table.

  B. Using where clause with update , only one record can be changed.

  C. With where clause of the update command ,multiple records can be changed.

  D. None of these

Q7: What is the output of the following query?

  Select instr("CORPORATE FLOOR","OR");

  A. 7   B. 14   C. 2   D. 0

Q8: What is the output of the following query:

  select substr(left(right("cbse exam 2023-24",6),4),2);

  A. -23   B. 23   C. 23-   D. Error

Q9: Which among the following is the right syntax to import numpy library?

  A. Import numpy as np   B. import numPy as np   C. import NUMPY as np   D. import numpy as np

Q10: What is the output of the following code:

  arr=np.array([[0,2,4],[3,9,6],[1,2,3],[12,13,14]])

  print(arr[0:3,1:2])

  A. [[2] [9] [2]]   B. [[2] [9] [2] [13]]   C. [[0] [1] [12]]   D. None of these

Q11: Write the output of the following query:

  Select Pow(instr("Sucess@hardwork","@"),2);

  A. 64   B. 14   C. 49   D. Error in query

Q12: Which among the following constraint specifies the referential integrity between the tables?

  A. Primary key   B. Unique   C. Check   D. None of these

Q13: Which among the following command will add a foreign key constraint on **tid** column of child table with reference to parent table's **tid** column?

  A. Alter table child add constraint foreign key(tid) references parent(tid);

  B. Alter table child add foreign key(tid) references parent(tid);

  C. Alter table parent add constraint foreign key(tid) references parent(tid);

  D. Alter table child add foreign key(tid) reference to parent(tid);

Q14: In a student table there are six rows and ten columns, what is the cardinality and degree of table.

  A. Cardinality 10, Degree 6   B. Cardinality 7, Degree 10

  C. Cardinality 6, Degree 10   D. Cardinality 60, Degree 10

Q15: In a student table a column fee has nine values as **0,4,6, Null, 10, Null,20,30,40.**

Write the output of the following query:

  Select avg(fee) from student;

  A. 75.71   B. 12.22   C. 15.22   D. Error in query

Q16: Write the output of the following query:

  Select pow(2,–2);

  A. 0.50   B. 0.25   C. 4.0   D. Error

Q17: If column "Fees" contains the data set (5000,8000,7500,5000,8000), what will be the output after the execution of the given query?

  SELECT SUM (DISTINCT Fees) FROM student;

  A. 20500   B. 10000   C. 20000   D. 33500

Q18: Which of the following is not the correct aggregate functions in SQL.
    A. AVG()   B MAX()   C. COUNT()   D. TOTAL()

Section "B"(52 marks)

Q19: Write the SQL functions with syntax which will perform the following operations: **5x1=5**
i) To display the current date .
ii) To display the substring **"earn"** from the whole string **'LearningIsFun'.**
iii) To round the number 76.384 up to 2 places after decimal point.
iv) To find the position of first occurrence of '**R**' in string **'INFORMATION FORM'**
v) To find out the result of 9^3 .

Q20: See the below table Vehicles and answer the questions from (a) to (c)   **3x2=6**

A relation Vehicles is given below:

V_no	Type	Company	Price	Qty
AW125	Wagon	Maruti	250000	25
J0083	Jeep	Mahindra	4000000	15
S9090	SUV	Mitsubishi	2500000	18
M0892	Mini van	Datsum	1500000	26
W9760	SUV	Maruti	2500000	18
R2409	Mini van	Mahindra	350000	15

Write SQL commands to:
a. Count the type of vehicles manufactured by each company.
b. Display the total price of all the types of vehicles
c. Display the average price of each type of vehicle
    OR (Option for part iii only)
Write a query to display type and price * quantity with title TOTAL PRICE company wise

Q21: Write outputs for SQL queries (i) to (iii) which are based on the given   **3x2=6**
tablePURCHASE:

TABLE: PURCHASE

CNO	CNAME	CITY	QUANTITY	DOP
C01	GURPREET	NEW DELHI	150	2022-06-11
C02	MALIKA	HYDERABAD	10	2022-02-19
C03	NADAR	DALHOUSIE	100	2021-12-04
C04	SAHIB	CHANDIGARH	50	2021-10-10
C05	MEHAK	CHANDIGARH	15	2021-10-20

    i.   **SELECT LENGTH(CNAME) FROM PURCHASE WHERE QUANTITY>100;**
    ii.   **SELECT CNAME FROM PURCHASE WHERE MONTH(DOP)=3;**
    iii.   **SELECT MOD (QUANTITY, DAY(DOP)) FROM PURCHASE WHERE CITY= 'CHANDIGARH';**

Q22: Based on table **STUDENT** given here, write suitable SQL queries for   **3x2=6**
thefollowing:

Roll No	Name	Class	Gender	City	Marks
1	Abhishek	XI	M	Agra	430
2	Prateek	XII	M	Mumbai	440
3	Sneha	XI	F	Agra	470
4	Nancy	XII	F	Mumbai	492
5	Himnashu	XII	M	Delhi	360
6	Anchal	XI	F	Dubai	256
7	Mehar	X	F	Moscow	324
8	Nishant	X	M	Moscow	429

i. Display gender wise highest marks.
ii. Display city wise lowest marks.
iii. Display total number of male and female students.

Q23: Write suitable SQL query for the following: **5x1=5**

i. Display 7 characters extracted from 7th left character onwards from the string 'DIGITAL INDIA'.
ii. Display the position of occurrence of string 'COME' in the string 'WELCOME WORLD'.
iii. Round off the value 23.78 to one decimal place.
iv. Display the remainder of 100 divided by 9.
v. Remove all the expected leading and trailing spaces from a column **userid** of the table **'USERS'**.

Q24: Explain the following SQL functions using suitable examples.   **5x1=5**
   i. UCASE()   ii. TRIM()   iii. MID()   iv. DAYNAME() v. POWER()

Q25: Create following array namely **arr** having the following elements: **2**
    [[-5 7 9 6]
     [5 9 4 5]
     [7 3 4 1]
     [0 1 2 5]]

Q26: Create following customer table having the given specifications: **5**

Field	Data Type	Constraints
C_id	Int(5)	Primary key
C_name	Varchar(30)	Must not be empty
C_dop	Date	
C_contact	Varchar(10)	Must be unique
P_id	Int(2)	Foreign key Reference table is **product** and column name is **prodid**

Q27: Consider the following tables SENDER and RECIPIENT . Write SQL command for the (i) to (iii)   **3x2=6**

<div align="center">SENDER</div>

Senderid	Sendername	Address	Sendercity
ND01	R JAIN	2, ABC APPTS	NEW DELHI
MU02	H SINHA	12, NEWTOWN	MUMBAI
MU15	S JHA	27/A, PARK STREET	MUMBAI
ND50	T PRASAD	120-K,SDA	NEW DELHI

<div align="center">RECIPIENT</div>

RECID	SENDERID	RECNAME	RECADDRESS	RECCITY
K05	ND01	R BAJPAYEE	5, CIVIL LINE	KOLKATA
ND08	MU02	S MAHAJAN	116 A VIHAR	NEW DELHI
MU19	ND01	H PRASAD	2A EAST	MUMBAI
MU32	MU15	S SRIVASTAVA	B5 MAYUR VIHAR	NEW DELHI

i. To display names of all senders from Mumbai in the descending order names.
ii. To display recid, sendername, senderaddress, recname, recaddress for every recipient.
iii. To display no of recipients from each city.

Q28: Difference between order by clause and group by clause, give example of each.   **3**
Q29: Write complete explanation about the count(*) and count(column name) with examples.   **3**