

(2 ½ Hours)

[Total Marks: 75]

- N.B.
- 1) All questions are compulsory.
 - 2) Figures to the right indicate marks.
 - 3) Illustrations, in-depth answers and diagrams will be appreciated.
 - 4) Mixing of sub-questions is not allowed.
 - 5) Assume suitable data if necessary and state it clearly.

**Q.1 Attempt All.****(15M)****(a) Multiple Choice Questions**

1) Select _____ from instructor where dept name= 'Comp. Sci.'; Which of the following should be used to find the mean of the salary?

- A) mean(salary)
- B) min(salary)
- C) avg(salary)
- D) average(salary)

2) Which of the following is the syntax for views where v is view name?

- A) Create view v as "query name";
- B) Create "query expression" as view;
- C) Create view v as "query expression";
- D) Create view "query expression";

3) Cartesian product in relational algebra is

- A) a Unary operator.
- B) a Binary operator.
- C) a Ternary operator
- D) not defined.

4) Architecture of the database can be viewed as

- A) two levels.
- B) four levels.
- C) three levels
- D) one level

5) Grant and revoke are statements.

- A) DDL
- B) DML
- C) DCL
- D) TCL

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(b) Fill in the blanks. [use following answer pool to fill the correct answer.]

[row, column, unique, single, committed, length, DDL, DML]

- 1) In Mathematical term _____ is called as tuple.
- 2) Primary key should be _____.
- 3) A transactions completes its execution is called as _____.
- 4) _____ is one of the string handling function in mysql.
- 5) CREATE command is _____ ..

(c) Answer in one line.

- a) Define DBMS.
- b) Write syntax for inserting a row in a table.
- c) Why security is needed in DBMS?
- d) Define subquery.
- e) Give one example of multivalued attribute.

Q.2 Attempt the following(Any THREE)

[15 M]

- a) What are the Levels of Abstraction?
- b) Explain Record Based Logical Model.
- c) What do you mean by Binary Relationship and Ternary Relationship? Explain with suitable examples.
- d) What are the characteristics of Relations?
- e) Define following terms:
 - i) Value Set
 - ii) Composite Attribute
 - iii) Multivalued Attribute
 - iv) Simple Attribute
 - v) Entity Type
- f) Construct an ER Diagram for Railway Reservation System.
[Assume suitable data and mapping cardinalities exists.]

Q.3 Attempt the following(Any THREE)

[15 M]

- a) What do you mean by Functional Dependency?
 - b) Explain following operations of Relational Algebra with algebraic query example.
 - i) Selection
 - ii) Cross Product
 - c) How do you Backup and Restore Database in MySQL?
 - d) Explain Group BY and Having Clause of MySQL with suitable query example.
 - e) Explain all Aggregate Functions used in MySQL.
 - f) Consider following table. Underline fields are key fields.
Book(bookid, title, author, publisher, category, price,)
- Solve following queries using MySQL—
- i) Create above table with **bookid** as Primary Key.

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- ii) Find out Book titles starts with 'D'.
- iii) Add a column 'Year' with data type INT in **Book** table.
- iv) Find out Books with price in the range of Rs. 500 to Rs. 1000.

Q.4 Attempt the following(Any THREE)

[15 M]

- a) Explain any 5 String functions used in MySQL with example.
- b) What do you mean by Join? Explain Left outer join and Right outer join with suitable query example.
- c) What are the different threats to the databases?
- d) What do you mean by privileges with respect to databases? How to grant and revoke privileges?
- e) Write short note on correlated subqueries. Give example of it.
- f) Consider following tables:

Supplier(suppno, sname, city)**Orders(orderno, orderdt, qty,amt,suppno)**

Solve following queries using MySQL:

- i) Display details of suppliers who have taken the orders.
- ii) Create a view showing the details of supplier living in each city.
- iii) Get the details of suppliers who have not taken any order. (Solve with subquery).

Q.5 Attempt the following (Any THREE)

[15 M]

- a) Write short note on Aggregation. Explain with example.
- b) What are the drawbacks of traditional file processing systems?
- c) What is the use of keyword 'Distinct' and 'all' in MySQL? Explain with query example.
- d) How to create and drop a user in MySQL?
- e) What do you mean by views? What are its types?