Roll No. : .....

Total No. of Questions : **16**] [*Total No. of Printed Pages : 3*

SEMC–213

M.Sc. (IInd Semester) Examination, 2022

COMPUTER SCIENCE

Paper - FS-COMP-MSC-CS-CC-201

(Database Management System)

Time : 1½ Hours] [*Maximum Marks : 40*

Note :– The question paper contains three Sections.

Section–A **(Marks : 1 × 10 = 10)**

Note :– *Answer* all the *ten* questions (Answer limit **50** words). Each question carries **1** *mark.*

Section–B **(Marks : 3 × 5 = 15)**

Note :– *Answer any five* questions by selecting at least *one* question from each Unit (*Answer limit* **200** words). Each question carries **3** marks.

Section–C **(Marks : 5 × 3 = 15)**

Note :– *Answer any three* questions by selecting *one* question from each Unit (*Answer limit* **500** words). Each question carries **5** marks.

Section–A

1. (i) Define Entities.

   (ii) What is Primary key ?

(iii) What do you understand by functional dependencies ?

(iv) Define Schema.

(v) What is Union ?

(vi) What is Entity integrity ?

(vii) Define Cursors.

(viii) Define Transaction.

(ix) What is Starvation ?

(x) Write the concept of data warehousing.

Section-B

Unit-I

2. Explain different types of data models.

3. Explain Database System Architecture.

4. Explain different types of relationships using ER diagram.

Unit-II

5. Explain referential integrity.

6. Explain the difference between union and intersection.

7. Give an example of triggers.

Unit-III

8. Explain desirable properties of transactions.

9. Explain deadlock prevention protocols.

10. Give an overview of database recovery techniques.

Section-C

Unit-I

11. Suppose you are given a simple database for State Cricket League (SCL) : The SCL has many teams, each team has a name, a city, a coach, a captain and a set of players, each player belongs to only one team, each player has a name, a position (such as opener or middle order), a skill set (such as batting or bowling), a team captain is also a player, a game is played between two teams and has a date and result. Construct an ER diagram for SCL database.

12. Explain Normalization using this data-student name, student class, address, date of birth, subject, fees paid, course, teacher name, teacher address.

Unit–II

13. Consider these two tables and answer the following queries :

Employee-eid, ename, mngrid, doj, city

Salary-eid, project, salary

(i) Write an sql query to fetch the employee id and name of all employees working under manager id 101.

(ii) Write an sql query to fetch the different projects available from salary table.

(iii) Write an sql query to fetch the counting of employees working in project 'pl'.

(iv) Write an sql query to get the name of employees working in city 'Delhi'.

(v) Write an sql query to get the name of employees whose salary is more than 50,000.

14. Give an example of creating and calling stored procedures.

Unit–III

15. What is Serializability ? Explain conflict-serializable schedules.

16. Explain two-phase locking technique in detail.