

Roll No. : .....

Total No. of Questions : 16 ]

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# SEMC-213

M.Sc. (IInd Semester) Examination, 2022

## COMPUTER SCIENCE

Paper - FS-COMP-MS-C-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 ?

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- (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, mnggrid, 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 'p1'.
  - (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.