

Roll No. : ..... 2125 .....

Total No. of Questions : 16 ]

[ Total No. of Printed Pages : 3

# SEM2013

M.Sc. (IInd Semester) Examination, 2021

COMPUTER SCIENCE

Paper - MCS-201

(Database Management System)

Time : 1½ Hours ]

[ Maximum Marks : 40

**Note :-** This question paper contains three Sections.

## Section-A

(Marks : 1 × 10 = 10)

**Note :-** Answer all the *ten* questions carries 1 mark each. The answer should not exceed 50 words.

## Section-B

(Marks : 3 × 5 = 15)

**Note :-** Answer *five* questions by selecting at least *one* question from each Unit. Each question carries 3 marks. Answer should not exceed 200 words.

## Section-C

(Marks : 5 × 3 = 15)

**Note :-** Answer *three* questions by selecting *one* question from each Unit. Each question carries 5 marks. The answer should not exceed 500 words.

## Section-A

1. (i) What do you mean by a functional dependency ?
- (ii) Define Schema.

(iii) What do you understand by entity type ?

(iv) Define referential integrity.

(v) What do you mean by cross product ?

(vi) What do you mean by triggers ?

(vii) Define a data warehouse in your words.

(viii) What do you mean by two-phase locking ?

(ix) Write one main feature of basic timestamp ordering algorithm.

(x) What do you mean by non-serial schedule ?

## **Section-B**

### **Unit-I**

2. Explain the concept of BCNF using suitable example.

3. Describe database system architecture.

4. Describe different types of data models.

### **Unit-II**

5. Differentiate between candidate and primary key with suitable example.

6. Explain the concept of nested queries.

7. Write an SQL query to find the 2nd largest salary of people in a company. Use suitable assumptions.

### **Unit-III**

8. Explain the method to deal with deadlock and starvation.

9. Describe desirable properties of transactions.

10. Explain the concept of serializability with suitable example.

## **Section-C**

### **Unit-I**

11. Draw an E-R diagram for simple banking system. You may take suitable assumptions.
12. Differentiate between 3NF and BCNF with suitable example.

### **Unit-II**

13. Explain different types of Join in relational algebra with suitable example of each.
14. Explain the concept of stored procedures in detail.

### **Unit-III**

15. Explain the concept of conflict serializable schedules.
16. Do two-phase locking protocols always ensure serializability ? Explain with suitable example.