

Roll No.

Total No. of Pages : 02

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M.Sc. (Computer Science) (2019 & Onwards) (Sem.–1)

**DATABASE MANAGEMENT SYSTEM**

Subject Code : MSC-103

M.Code : 70889

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students has to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

**SECTION-A**

- Q1. a) Differentiate file processing systems and database systems with suitable example. (5)
- b) Define DBA. What are its functions? (5)
- Q2. a) Explain the concept of data abstraction in three level architecture of database. (5)
- b) What are the different types of database end users? Discuss the main activities of each. (5)

**SECTION-B**

- Q3. a) Discuss the conventions for displaying an ER schema as an ER diagram. (7)
- b) List the various cases where use of a NULL value would be appropriate. (3)
- Q4. a) Discuss the characteristics of relations that make them different from ordinary tables and files. (5)
- b) Differentiate HDBMS, NDBBMS and RDBMS. (5)

**SECTION-C**

- Q5. For the following relation schema : (10)

*employee(employee-name, street, city)*

*works(employee-name, company-name, salary)*

*company(company-name, city)*

*manages(employee-name, manager-name)*

Give an expression in SQL for each of the following queries :

- a) Find the names, street address, and cities of residence for all employees who work for 'New Bank Corporation' and earn more than \$51,000.
  - b) Find the names of all employees in the database who live in the same cities as the companies for which they work.
  - c) Find the names of all employees in the database who live in the same cities and on the same streets as do their managers.
  - d) Find the names of all employees in the database who do not work for 'New Bank Corporation'. Assume that all people work for exactly one company.
  - e) Find the names of all employees in the database who earn more than every employee Of 'Old Bank Corporation'. Assume that all people work for at most one company.
- Q6. Explain functional dependency, non-trivial functional dependency, fully functional dependency and multi-valued functional dependency with example. (10)

#### SECTION-D

- Q7. Discuss the various conflicts of concurrency control system with example. (10)
- Q8. a) What is meant by granting a privilege? What is meant by revoking a privilege? (5)
- b) What additional functions does a DDBMS have over a centralized DBMS? (5)

#### SECTION-E

Q9. Write briefly :

- a) Define weak Entity.
- b) Define BCNF.
- c) In which situation we require 2-tier or 3-tier architecture of database?
- d) What do you mean by functional dependency?
- e) Define Degree and Cardinality of a relation.
- f) Define DML.
- g) Differentiate super key and candidate key.
- h) Define Demoralization.
- i) Define Data independence.
- j) What are the advantages of concurrent execution?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**