

Roll No.

Total No. of Questions : 09]

[Total No. of Pages : 02

Paper ID [CS305]

(Please fill this Paper ID in OMR Sheet)

B.Tech. (Semester -5th)

DATABASE MANAGEMENT SYSTEM (CS - 305)

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Section - A is **compulsory**.
- 2) Attempt any **Four** questions from Section - B.
- 3) Attempt any **Two** questions from Section - C.

Section - A

Q1)

(10 × 2 = 20)

- a) What do you understand by term data redundancy?
- b) What is the significance of foreign key?
- c) What is the usage of unified modelling language (UML)?
- d) What is the difference between a procedural and a non-procedural language?
- e) What is relational algebra?
- f) What is a trigger?
- g) What are multivalued dependencies?
- h) What do you mean by granularity of data items?
- i) What is statistical database security?
- j) What is data independence?

Section - B

(4 × 5 = 20)

- Q2) List five significant differences between a file-processing system and a DBMS.
- Q3) What are the major functions of a database administrator?

- Q4) What are the desirable properties of transactions in a database?
- Q5) What are locking techniques for concurrency control? Explain.
- Q6) Describe the usefulness of granting privileges to the users.

Section - C

(2 × 10 = 20)

- Q7) (a) What do you mean by relationships? Explain different types of relationships.
- (b) What is an ER-diagram? Construct an ER diagram for a hospital with a set of patients and a set of doctors. Associate with each patient a log of the various tests and examinations conducted.
- Q8) Consider the following relational database and give an expression in relational algebra to express each of the following queries
- employee (person-name, street, city)
- works (person-name, company-name, salary)
- company (company-name, city)
- managers (person-name, manager-name)
- (a) Find the names of all employees who work for First Bank Corporation.
- (b) Find the names and cities of residences of all employees who work for First Bank Corporation.
- (c) Find the names of all employees who do not work for First Bank Corporation.
- (d) Find names of all employees who earn more than \$10000 per annum.
- (e) Find names of all employees who earn more than every employee of Small Bank Corporation.
- Q9) Write short notes on the following
- (a) Serializability of schedules
- (b) Shadow Paging
- (c) Granting of Priviledges