H

TBC–401

B. C. A. (FOURTH SEMESTER)
MID SEMESTER EXAMINATION,
April/May, 2022

DATABASE MANAGEMENT SYSTEM

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) Define Database and Database Management System. Describe the advantages and disadvantages of using of DBMS. 10 Marks (CO1)

OR

(b) Draw and explain the three level architecture of the database system.

10 Marks (CO1)

2. (a) What are the different types of database end users ? Describe the responsibilities of the DBA and the database designer.

10 Marks (CO1)

OR

(b) Write difference between the following :

10 Marks (CO1)

(i) Logical vs. Physical Data Independence

(ii) File System vs. DBMS Approach

(iii) Composite key vs. Composite Attribute

3. (a) Define the following with respect to an E-R diagram. Explain the manner in which each is mapped to a table. Illustrate with an example.   10 Marks (CO1)

(i) Relationship set.

(ii) Aggregation.

(iii) Multivalued attribute

OR

(b) Draw an E-R diagram for banking system.

10 Marks (CO1)

4. (a) Differentiate between entity integrity and referential integrity. Explain the terms primary key, candidate key and foreign key.   10 Marks (CO2)

OR

(b) What is a relation ? Differentiate between a relational schema and a relational instance. Define cardinality and degree of a relation.   10 Marks (CO2)

5. (a) Define the *five* basic operators of relational algebra with an example of each.

10 Marks (CO2)

OR

(b) Consider the following relational schema :

10 Marks (CO2)

EMPLOYEE(EMPLOYEE_NAME, STREET, CITY)

WORKS(EMPLOYEE_NAME, COMPANYNAME,SALARY)

COMPANY(COMPANY_NAME,CITY)

Give an expression in the relational algebra to express each of queries below :

(i) Find the name of the employee who work for the First bank corporation.

(ii) Change the city of First bank corporation to "New Delhi".

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