TED (15/19) 3132

(Revision-2015/19)

N22-09175

Reg.No...........................

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER – 2022

DATABASE MANAGEMENT SYSTEM

[Maximum marks: 100]   (Time: 3 Hours)

PART – A
Maximum marks : 10

I (Answer *all* the questions in one or two sentences. Each question carries 2 marks)

1. Define DBMS.

2. Differentiate schema and instance.

3. Define degree of a relation with example.

4. State the use of triggers.

5. Define functional dependency.   (5 x 2 = 10)

PART – B
Maximum marks : 30

II (Answer any *five* of the following questions. Each question carries 6 marks)

1. List and explain any four advantages of DBMS.

2. Describe the following relational algebra operations with exmples.

   (a) SELECT (b) PROJECT

3. Write examples for each one of the following attribute categories by considering a suitable database table of your choice and illustrate your answer.

   (i)Composite (ii) Multi-valued (iii) Stored (iv) Derived

4. Explain any four constraints used in SQL with examples.

5. With examples, explain various of joins in SQL.

6. Describe any four data management issues of mobile databases.

7. Explain various parallel database architectures.   (5 x 6= 30)

PART – C

Maximum marks : 60

(Answer one full question from each unit.. Each full question carries 15 marks)

UNIT –I

III. (a) Explain the functions of each component module of DBMS with the help of a neat block diagram. (9)

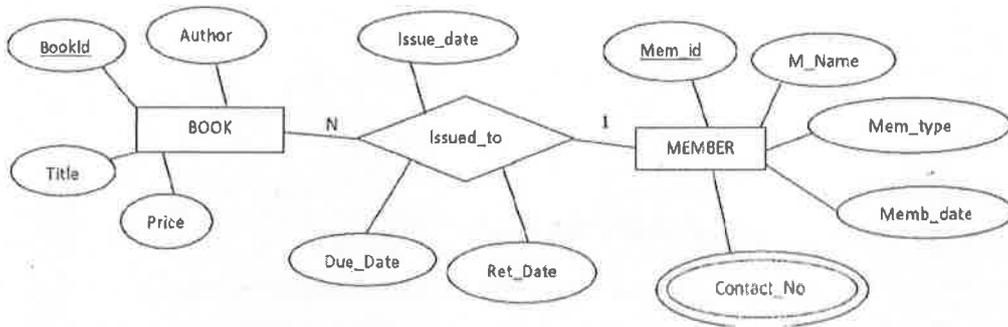(b) Discuss about any 6 applications of DBMS. (6)

OR

IV. (a) Describe the concept and objective of using three schema architecture in database systems. (8)

(b) Explain the client-server architecture of database systems. (7)

UNIT-II

V. (a) Explain the concept of specialization and generalization with examples. (8)

(b) Map the following ER Model to Relational model (7)

OR

VI. (a) Discuss about the use of various keys in relational data model with examples. (9)

(b) Explain various relationship types in ER Model with examples. (6)

UNIT-III

VII. (a) Describe the use of aggregate functions in SELECT statement. (8)

(b) Illustrate the use of cursors in SQL stored procedures with example. (7)

OR

VIII. (a) A computer training institution keeps a database with following tables:

Faculty (id, name, contact_no, courseid, gender, salary)

Courses (id, coursename, duration in month)

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As per the policy of institution, a course may be taught by more than one faculties.
Write SQL Commands for the following:

(i)   To create the tables with suitable keys.

(ii)   To insert data into both tables (At least 2 courses & 5 faculties. Also show the database instance after insertion)

(iii)   Write SQL command to retrieve all female faculties with salary greater than 20000

(iv)   Write SQL command to display the id, name and contact_no of highest salaried faculty.

(v)   Write SQL command to increase the salary of faculties belongs to a specified course by 5% (Choose any course from your sample data)   (5 x 2 = 10)

(b) Explain various states of a transaction using a state diagram.   (5)

UNIT-IV

IX.(a) Define data mining and state its major goals.   (7)

(b) State the conditions for a table to be in third normal form. An instance of a relation is given below. Test whether it is in 3NF or not. If not, decompose it into 3NF   (8)

CUST_ID	CUSTOMER_NAME	CUST_CITY	POSTAL_CODE
C01	ABC Bank	Kochi	682001
C02	XYX Finance	Kollam	691001
C03	Horizon Bank	Thrissur	680001
C04	Relief Chitty	Kochi	682001
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OR

X. (a) Explain the concept of transparency and autonomy in distributed databases.   (7)

(b) Discuss about the concept of decomposition of tables and desirable properties of decomposition.   (8)

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