TED (15) – 4255

(REVISION — 2015)

Reg. No. .....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

RELATIONAL DATABASE MANAGEMENT SYSTEMS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. Interpret the term 'data independence'.
2. Distinguish between candidate key and super key.
3. Define functional dependency.
4. Name the SQL command used for :
   (a) deleting a table (b) modify the structure to add an attribute
5. State any two purposes of trigger. (5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. Demonstrate weak entity set with an example.
2. Classify database users based on their interaction with DBMS.
3. Explain domain constraints and key constraints.
4. Elaborate on :
   (a) Dependency preservation (b) Multivalued dependencies
5. Discuss the different requirement for which ALTER Table command is used for. Write the general syntax for each.
6. List the transaction states in transaction management. Draw a neat state transition diagram indicating the flow of transition.
7. Summarize the features of dynamic SQL with an example. (5 × 6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III (a) Describe the following.

(i) Storage manager (ii) Query processor (iii) Disk storage 9

(b) List any six advantages of DBMS. 6

OR

IV (a) Specify symbols and the meaning of ER Model Notations. 9

(b) Draw ER diagram for the relation published by associating the two scheme as given below :

(i) Book (ISBN, TITLE, CATEGORY, PRICE, YEAR, AUTHOR, PAGE_COUNT, PID)

(ii) Publisher (PID, PNAME, ADDRESS, STATE, PHONE, MAIL ID) 6

UNIT — II

V (a) Describe how the mapping from ER model to relational model is achieved outlining the steps involved in the process. 9

(b) Compare the 2NF and 3NF Normal forms in Relational Model. 6

OR

VI Summarize the importance of relational algebra. Write a brief description on both unary and binary relational operations. 15

UNIT — III

VII (a) Write the general syntax of the command for creating a table for the following relation - Employee (ENO, ENAME, DEPARTMENT, BASICPAY, DA, HRA, GROSSPAY, DEDUCTION, NETPAY). Assign suitable data types and set the Primary Key.

Write Queries for the following :

(i) Add an attribute named Annual Income to the table.

(ii) Calculate Annual income of the employees

(iii) Calculate DA as 50% of Basicpay, Grosspay as Basicpay + DA + HRA and Netpay as Grosspay — Deductions

(iv) Find the number of employees working in 'Computer' Department.

(v) Retrieve the maximum, minimum and average grosssalary of each department. 9

(b) State the role of aggregate functions in DBMS. Illustrate the purpose of following aggregate functions with example :

(i) MAX( ) (ii) MIN( ) (iii) COUNT( ) 6

OR

Marks

VIII Point out the significance of query optimization. Describe the three types of query optimization methods. 15

UNIT — IV

IX (a) Explain :

(i) Features of Embedded SQL (ii) Concurrent Execution of transaction. 8

(b) Explain the use of cursor in retrieving multiple records. 7

OR

X (a) Define Transaction. Elaborate the ACID Properties of transaction. 8

(b) Elaborate the concept of stored procedure with suitable example. 7