DATABASE MANAGEMENT SYSTEM

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) Define database management system. What are the advantages of using a database approach over file oriented approach ?

    $2+7=9$

   (b) Explain briefly the three schema architecture. 5

2. (a) What is a data model ? Describe various types of data model used in constructing a database. $2+5=7$

   (b) Define data independence. What are the different types of data independence ? 5

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(c) List various sections of people associated with DBMS. 2

3. (a) Define the terms : 4×2=8

    (i) Entity

    (ii) Weak entity type

    (iii) Relationship

    (iv) Attribute.

(b) What is foreign key ? Why is this concept used for ? How does it play a role in the join operation ? 6

4. (a) What are different types of SQL ? Explain each type. 5

(b) Write the syntax of the following SQL statements. (any *six*). 6×1.5=9

    (i)   Insert

    (ii) Select

    (iii) Create table

    (iv) Alter

    (v) Update

    (vi) Create view

    (vii) Delete.

5. (a) Define first, second and third normal forms when only primary keys are considered. How do the general definition of 2 NF and 3 NF which consider all keys of a relation differ from those that consider only primary keys ?

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(b) What is Boyce Codd normal form ? How does it differ from 3 NF ? Why is it considered stronger form of 3 NF ?   6

6. (a) What is a transaction ? What are the desirable properties of a transaction ?   5

(b) What do you mean by schedule and complete schedule ?   3

(c) Define non-recoverable schedule, strict schedule and cascadeless schedule.   6

7. (a) Discuss briefly the various concurrency control technique.   7

(b) Define (any *two*) : 2×2=4

(i) Database authorization

(ii) Access control

(iii) Data encryption.

(c) What are the advantages of distributed database ? 3