DATABASE MANAGEMENT SYSTEM

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

Answer question No.1 and any *four* from the rest.

1. Answer the following short questions :

    5×2=10

    (a) Write the full form of ACID.

    (b) Define multi-valued attribute with an example.

    (c) Explain prime and non-prime attribute.

    (d) Define the full functional dependency.

    (e) Define plain text and cipher text.

2. (a) Illustrate the armstrong inference rules. 3

    (b) Explain functional dependency. 3

[Turn over

(c) Define 1NF, 2NF and 3NF along with proper examples. $3 \times 3 = 9$

3. (a) Write about data independence. Also define logical and physical data independence. 5

(b) Illustrate 3-schema architecture. 4

(c) Explain the following keys : 6

  (i) super key

  (ii) primary key

  (iii) candidate key

  (iv) foreign key

4. Define SQL and also define the following SQL languages : $3 \times 5 = 15$

  (i) DDL

  (ii) DML

  (iii) DCL

5. (a) State the advantages of using distributed database. 6

(b) Explain horizontal and vertical fragmentation. 6

(c) Explain the concept of encryption. 3

6. (a) Describe different transaction states, with the help of state transition diagram. 5

(b) Describe the role of system log. 3

(c) Define schedule. Also define different types of schedules – (any *three*) : 1+6=7

(i) recoverable schedule

(ii) cascading rollback schedule

(iii) cascadeless schedule

(iv) strict schedule.

7. Write short notes on any *three* : 3×5=15

(a) Two phase locking

(b) Time stamp ordering algorithm

(c) Deadlock and starvation

(d) Distributed database.