

DBMS
2K5-DS-04

Time : 3 Hrs.

M.M. : 100

Note :—

1. Part 'A' may be attempted in first 6 pages of Answer Sheet.
भाग 'क' के सभी उत्तर, उत्तर-पुस्तिका के प्रथम छः पृष्ठों में ही करने हैं।
2. Part 'B' in rest of the Sheets of Answer Sheet.
भाग 'ख' के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
3. Answers may be given in English or Hindi.
प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

PART - A

1. Attempt any 10 questions:

(10 × 2 = 20)

- (a) What are DDL and DML?
- (b) Define database Management system (DBMS)?
- (c) What are Weak entites?
- (d) Define Primary key.
- (e) Which is the weakest normal form?
- (f) Define Data Mining.
- (g) What is a multimedia database?
- (h) Define Normalization.
- (i) What should be used as primary key in the following scheme:
department (deptname, building, budget, department-ID)
- (j) Define Single-valued attributes with example.
- (k) Use the Selection operator in a Relational Query Language statement syntax.
- (l) What functional dependencies are said to be trivial?
- (m) Give two real life applications of Data Mining.
- (n) How many levels of abstraction are present in a database management system?
Name them.

2. Attempt any five questions:

(5 × 4 = 20)

- (a) Describe the properties of RDBMS.
- (b) What are the advantages of DBMS?

- (g) What is Functional Dependency? Explain it briefly.
- (d) Write and explain the structure of SQL SELECT statement with suitable example.
- (e) What is Data Independence? Why is essential?
- (f) Differentiate between where clause and group by clause with corresponding examples.
- (g) Differentiate between 3NF and BCNF.
- (h) Give the advantages of Database Management System over File system.

PART- B

(3 × 20 = 60)

Attempt any three questions:

3. (a) Show how to preserve Functional Dependencies during decomposition with an example.
(b) Discuss in detail about primary file organization.

4. Consider the following schemes:

Sailors (sid, sname, rating, age)

Reserves (sid, bid, day)

Boats (bid, bname, color)

Write the following queries in relational algebra, tuple relational Calculus and domain relational calculus:

- (a) Find the name of sailors who have reserved boat 103.
 - (b) Find the names and ages of sailors with a rating above 7.
 - (c) Find the names of sailors who have reserved a red boat.
 - (d) Find the sname, bid, and day for each reservation.
 - (e) Find the name of sailors who have reserved at least one boat.
5. (a) Explain data warehousing and its architecture in detail.
(b) What is Data Mining? Explain it in details along with its application in real world.
 6. (a) What is ER model? Explain its concepts.
(b) Discuss about transaction recovery techniques.
 7. (a) What is a view? How to specify a view? Write about view implementation techniques.
(b) Why concurrency control is needed? Explain the problems that would arise when concurrency control is not provided by the database system.