

[35115]
M.C.A DEGREE EXAMINATIONS
THIRD SEMESTER
Paper - V : DATABASE MANAGEMENT SYSTEMS
(2019-20 Admitted Batch)

Time : 3 Hours

Maximum : 75 Marks

SECTION - A

Answer ALL Questions.

(4×15=60)

1.
 - a) Describe the client server architecture for the database with necessary diagram.
 - b) Explain about inheritance, specialization and generalization using E-R diagrams.

(OR)

 - c) Discuss the importance of entity integrity and referential integrity constraints.
 - d) What is a data model? Describe various data models.
2.
 - a) Write about different types of join operations in relational algebra.
 - b) Describe the usage of SQL CREATE, UPDATE and ALTER statements with syntax and example.

(OR)

 - c) Consider the following schema:
Suppliers (sid, sname, address)
Parts (pid, pname, color)
Catalog (sid, pid, cost)
Write the relational algebraic queries for the following:
 - i) Find the sids of suppliers who supply some red or green part
 - ii) Find the sids of suppliers who supply every red or green part
 - iii) Find the pids of parts supplied by at least two different suppliers.
 - d) Explain the following in SQL with examples:
 - i) Nested Queries
 - ii) Group by and Having Clauses

3. a) Discuss the concept of cylinder and its benefit in disk organization.
- b) Suppose that we decompose the schema, $R = (A, B, C, D, E)$ into (A, B, C) and (A, D, E) Show that this decomposition is lossless decomposition. If the following set F of FDs holds $A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A$.

(OR)

- c) Explain about hash based indexing with an example. Compare dynamic hashing with static hashing.
- d) Explain about 3NF and BCNF. What is the difference between them.
4. a) Discuss query processing algorithms for Project and Set operations.

(OR)

- b) Explain the ARIES recovery method. When does a system recover from a crash?
- c) Why concurrency control is needed? Explain the problems that would arise when Concurrency control is not provided by the database system.

SECTION - B

Answer any Five questions.

(5×3=15)

5. a) List the disadvantages of file system.
- b) What are the data types supported by SQL?
- c) What is a weak entity type? How to model it?
- d) What are the properties of transactions?
- e) State different DML operations.
- f) What is Functional Dependency?
- g) Describe the structure of a node in B-tree.
- h) What is database Recovery?
-