



Code No: D- 2496/N/AICTE



FACULTY OF ENGINEERING

B.E. (IT) IV-Semester (AICTE) (Main) (New) Examination, September/October 2022

Subject: Database system

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Time : 3 Hours

Max. Marks: 70

- Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed

1. (a) Differentiate between file system and database system
(b) Distinguish between primary key, candidate key and super key with an example.
(c) What is meant by functional dependency? Give an example
(d) State the purpose of Indexing
(e) What is a view? Give any two differences between view and table.
(f) Define Nested queries. Give one example.
(g) Differentiate OLTP Vs OLAP
2. (a) Explain three schema architecture in detail.
(b) What are different database languages and explain.
3. (a) Explain the concept of Generalization, specialization and aggregation with an example.
(b) What is Normalization? Give an example of 1NF, 2NF and 3NF.
4. (a) Define Hashing. Write the differences between static and dynamic hashing
(b) Construct B+ tree for the following set of values. Assume $n=3$
5 15 25 35 45
55 65 75 85 95 99
5. Explain about following
(a) Domain relation calculus
(b) Specifying primary key and foreign key constraints in SQL with an example.

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6. Consider the following relations:
Sailors (s-id, s_name, age, rating)
Boats (b-id, b_name, b_color)
Reserves (sid, bid, day)

Write the statements in Relation Algebra and SQL for the following questions.

- (a) Find the names of sailors who have reserved a Red boat
- (b) Find the names of sailors who have reserved at least one boat
- (c) Find the names of sailors who have reserved a Red and Green boat
- (d) Find the names of sailors who have reserved a Red or White boat
- (e) Find the names of sailors who have reserved all boats

7. Write a short notes on
- (a) Deadlock detection and recovery
 - (b) Correlated nested queries
 - (c) 2-phase locking protocol

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