

S.No. : 524

BCS 2401

No. of Printed Pages : 04

Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 23207

Roll
No.

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B. Tech. Examination 2021-22

(Even Semester)

DATABASE MANAGEMENT SYSTEMS

Time : Three Hours]

[Maximum Marks : 60

Note :- Attempt all questions.

SECTION – A

1. Attempt all parts of the following : 8 × 1 = 8

- (a) Explain super key with example.
- (b) What are derived attributes and draw its representation symbol?
- (c) What do you mean by an instance?
- (d) What is schedule? Explain with example.
- (e) What is log? How it is maintained?
- (f) What is a deadlock?

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- (g) What is the meaning of normalisation?
- (h) Mention roles of DBA.

SECTION – B

2. Attempt any two parts of the following : $6 \times 2 = 12$

- (a) When is the concept of weak entity used in data modelling? Define the terms strong entity, weak entity, identifying relationship and partial key.
- (b) Define serializability. Differentiate conflict and view serializability.
- (c) What do you mean by normalization? Explain BCNF and 3NF with a suitable example.
- (d) Let the following relational schema be given:

Employee (SSN, name, age, dno)

Salary (SSN, salary)

Work on (project #, SSN)

Project (project#, project_name, locating)

For each of the following queries given expression in SQL

- (i) Display the name of project at "Delhi".

- (ii) Find the project name of employee whose salary is greater than 10000
- (iii) Retrieve the name and SSN of employees working on project # A100.

SECTION – C

Note:- Attempt all questions. Attempt any two parts from each questions. **8 × 5 = 40**

- 3. (a) Draw the overall structure of DBMS and explain its various components.
- (b) Differentiate between database system and file system.
- (c) What do you mean by the terms aggregation and generalization?
- 4. (a) Describe the term MVD. Discuss 4NF and 5NF in detail.
- (b) Discuss join and types with suitable example.
- (c) What is trigger? Explain different trigger with example.
- 5. (a) Explain the following terms :
 - (i) Deadlock detection and recovery
 - (ii) Shadow paging

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- (b) State with example desirable properties of a transaction. What is the system log used for?
 - (c) How does Boyce-codd normal form differ from 3NF? Why is it considered stronger from 3NF?
6. Write short notes on any two of the following :
- (a) Two phase locking
 - (b) Need for concurrency control
 - (b) Multiversion techniques
