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Roll No. :

B022413(022)

B.Tech. (Fourth Semester) Examination

Nov.-Dec. 2021

(CSE Branch) AICTE

DATABASE MANAGEMENT SYSTEM

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. Attempt any two parts from (a), (b) and (c) of each unit. Each part carries 10 marks.

Unit-I

1. (a) Explain ANSI/SPARC 3 level architecture of DBMS.

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- (b) Explain different type of data models.
- (c) Explain different types of Key in relational model with examples.

Unit-II

2. (a) What are the different types of functional dependencies? Consider the following set of FD's :

$AB \rightarrow C$

$A \rightarrow DE$

$B \rightarrow F$

$F \rightarrow GH$

$D \rightarrow IJ$

Find :

- (i) super key
 - (ii) irreducible set
 - (iii) candidate key
- (b) Explain Normalization with examples.

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- (c) Explain the following functions :
- (i) Select operation
 - (ii) Project Operations
 - (iii) Union
 - (iv) Intersection
 - (v) Rename

Unit-III

3. (a) Explain Query optimization. Explain the structure of query optimizer.
- (b) Explain different approaches of storage strategies in detail.
- (c) How to evaluate relational algebra expressions in DBMS.

Unit-IV

4. (a) Give the significance of serializability in database transaction. How view serializability is different from conflict serializability.

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- (b) What is lock compatibility matrix? Explain with an example the concurrency control techniques for scheduling database transactions.
- (c) Discuss the time stamp ordering protocol for concurrency control. How does strict time stamp ordering differ from basic time stamp ordering.

Unit-V

- 5. (a) Explain the architecture of knowledge discovery using data warehousing and mining.
- (b) What is logical and web database? Differentiate between object oriented and object relational database.
- (c) Write short notes on :
 - (i) Intrusion detection techniques in database
 - (ii) Authorization, Authentication and access control in database