

5E5044

Roll No. _____

Total No of Pages: **4****5E5044****B. Tech. V Sem. (Main/Back) Exam., Nov.-Dec.-2016****Electrical & Electronics Engineering****5EX4A Database Management System****EE, EX****Time: 3 Hours****Maximum Marks: 80****Min. Passing Marks Main: 26****Min. Passing Marks Back: 24***Instructions to Candidates:*

*Attempt any **five** questions, selecting **one** question from **each** unit. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly.*

Units of quantities used/calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL2. NIL

UNIT – I

Q.1 (a) What is DBMS? Explain purpose and goals of DBMS and also draw the overall architecture of DBMS and explain its various components. [7]

(b) Define the following terms – [3×3=9]

(i) Primary key & Foreign key

(ii) ER Modeling

(iii) Generalization and Aggregation

OR

- Q.1 (a) Design an E-R diagram for "Tourism" system consisting of Transport, Place, attractions, accommodation, info tourist. Clearly highlight the primary keys and mapping cardinalities. [7]
- (b) Differentiate between the following –
- (i) Candidate key and super key.
 - (ii) Entity sets, Attributes and Relationship sets.
 - (iii) Ternary Relationship and Aggregation. [3×3=9]

UNIT – II

- Q.2 (a) What is Normalization? Explain its need. Define various normal forms with example. [8]
- (b) Explain the following terms –
- (i) Physical & Logical databases
 - (ii) Relational Algebra and Relational calculus. [4×2=8]

OR

- Q.2 (a) How does Boyce – Codd normal form differ from 3NF? Why is it considered stronger than 3NF? Also discuss 4NF and 5NF with suitable example. [7]
- (b) Define the following – [3×3=9]
- (i) Multivalued Dependency
 - (ii) Functional Dependency
 - (iii) Lossless Decomposition

UNIT – III

- Q.3 (a) What do you mean by query and sub query? Discuss the various characteristics of SQL and explain five aggregate functions with suitable example. [8]
- (b) Explain the following – [2×4=8]
- (i) ORDER BY
 - (ii) GROUP BY
 - (iii) LIKE
 - (iv) EXCEPT

OR

- Q.3 (a) What is a view? How a view be used to implement database security? Explain with example. [8]
- (b) Explain in detail: [4×2=8]
- (i) Stored procedures and Triggers
 - (ii) JDBC and Dynamic SQL

UNIT – IV

- Q.4 (a) What are the various types of indexes? Explain with examples. [6]
- (b) What do you mean by schedule in the context of concurrent execution of transactions in RDBMS? Discuss physical data organization in sequential indexed, random and hashed files. rtuonline.com [10]

OR

- Q.4 (a) What is physical data organization in sequential and how does it work. [8]
(b) Explain inverted and multi list structures. [8]

UNIT – V

- Q.5 (a) Define transaction management? What are the properties of transaction? Explain in detail. [8]
(b) Define Serializability. What are its various types? [8]

OR

- Q.5 (a) What is a Deadlock? Explain various techniques of handling deadlocks. [8]
(b) What is concurrency control: Lock based protocol? Explain with example. [8]
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