

B.Tech II Year I Semester (R15) Supplementary Examinations June 2018

**DATABASE MANAGEMENT SYSTEMS**

(Common to CSE &amp; IT)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is data model? List any two data models.
  - (b) State the differences between total and partial constraints.
  - (c) What is division operation? Give an example.
  - (d) Define outer joins. Give an example.
  - (e) Mention the main differences between trivial and non-trivial dependencies.
  - (f) Write any two properties of decompositions.
  - (g) List the ACID properties.
  - (h) State Thomas' write rule.
  - (i) What is ordered index? Give an example.
  - (j) Mention any two differences between linear and extendible hashing.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 Explain the architecture of database system with a neat diagram.

**OR**

- 3 Draw an E-R diagram for a core banking enterprise system and identify the derived and composite attributes, the strong and weak entity sets, and relationships.

**UNIT – II**

- 4 Explain tuple relational calculus and domain relational calculus with an example for each.

**OR**

- 5 Explain three set relational and set membership operations in SQL with its form.

**UNIT – III**

- 6 (a) Compare and contrast between third normal form and BCNF.  
(b) Write about loss-less join decomposition with an example.

**OR**

- 7 (a) Discuss multivalued dependencies with fourth normal form with an example.  
(b) Explain join dependencies with fifth normal form with an example.

**UNIT – IV**

- 8 Explain about two-phase locking and timestamp-based protocols with its transactions and schedules.

**OR**

- 9 Write and discuss any two advanced recovery techniques and their uses.

**UNIT – V**

- 10 Discuss about hash based indexing and tree based indexing with their data structures and indices.

**OR**

- 11 Explain about B<sup>+</sup> - tree file organization with its data structure, search and deletion operations.

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