

B.Tech II Year II Semester (R13) Supplementary Examinations May/June 2017

DATABASE MANAGEMENT SYSTEMS

(Common to CSE & IT)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
 - (a) Differentiate between logical and physical data independence.
 - (b) Define schema and degree of relationship.
 - (c) Define fully functional dependency.
 - (d) Define a superkey of a relation R.
 - (e) What do you mean by enterprise constraint? How it is supported in SQL.
 - (f) Explain the ACID properties of a transaction.
 - (g) Define a schedule of a transaction.
 - (h) Suppose blocks hold either three records or ten key pointer pairs. As a function of n, the number of records, how many blocks do we need to hold data file and dense index?
 - (i) Explain the COMMIT and ABORT commands of SQL.
 - (j) What is the condition for 2PL?

PART – B

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

UNIT – I

- 2 (a) Define cardinality ratio. Explain its different types with an example.
- (b) Discuss the different notations used in E-R diagram.

OR

- 3 Explain with an example, how do you convert the E-R diagram into relational schema.

UNIT – II

- 4 Consider the following relation and functional dependencies. Check whether they are equivalent or not.
 $R(A, B, C, D, E, F)$
 $F1 = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow F\}$ $F2 = \{A \rightarrow CD, E \rightarrow ADF\}$

OR

- 5 (a) Explain any two set theoretic operations of relational algebra with an example.
- (b) Explain the DIVISION operation with an example.

UNIT – III

- 6 Explain different clauses of SELECT with an example.

OR

- 7 Consider the following relational schema Sailors(sid: integer, sname: string, rating: integer, age: real)
 Boats(bid: integer, bname: string, color: string)
 Reserves(sid: integer, bid: integer, day: date)
 Write the SQL statements to implement the following.
 - (i) Find the names of sailors who have reserved boat number 103.
 - (ii) Find the names of sailors who have reserved at least one boat.
 - (iii) Find the names of sailors who have reserved both a red and a green boat
 - (iv) Find the names of sailors who have reserved all boats

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UNIT – IV

8 Explain the following in brief:

- (a) Sparse index
- (b) Dense index.

OR

- 9 (a) Explain the structure of a B-tree node.
(b) Discuss the advantages of hashing and types of hashing.

UNIT – V

- 10 (a) Explain the lock_item(X) and unlock_item(x) operations on binary locks.
(b) Discuss the different modes of failures.

OR

- 11 Explain how recovery is done using undo logging and redo logging.

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