BICS-011

B.Tech. – VIEP – COMPUTER SCIENCE AND ENGINEERING (BTCSVI)

ⵔⵔⵑ⼁⼎ Term-End Examination

December, 2017

BICS-011 : DATABASE MANAGEMENT SYSTEM

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. (a) What is DBMS ? What are the advantages of DBMS ?   **5**

   (b) What are the levels of abstraction in a DBMS ? Explain them briefly.   **5**

2. (a) What is Multilevel Indexing ? How is multilevel indexing used in B+ trees ? Explain briefly.   **5**

   (b) Explain the importance of E-R diagram. Also explain Binary versus Ternary relationships with example.   **5**

3. (a) What is meant by Relational Model ? Explain the unary relational algebra operations SELECT and PROJECT briefly. 5

(b) How can you convert E-R to relational model ? Explain with example. 5

4. (a) How do you perform various querying operations like create and modify on relations ? 5

(b) Explain the following terms : 5

(i) Primary Key

(ii) Foreign Key

(iii) Cartesian Product

(iv) Union

(v) Intersection

5. (a) What is Functional Dependency ? Explain inference rules for functional dependency. 5

(b) What is normalization ? Explain BCNF and 3NF. 5

6. (a) What is meant by Redundancy ? What are the problems caused by Redundancy ? 5

(b) Compare and contrast functional dependency and multivalued dependency with example. 5

7. (a) What is a Transaction ? Explain ACID properties. 5

   (b) What is Strict Two-Phase Locking (Strict 2PL) and Deadlock ? 5

8. (a) What are the procedures of various recovery techniques used in DBMS ? 5

   (b) What is the role of transaction manager in crash recovery ? Explain dirty reads from stored DBMS. 5

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