B.E. (Information Technology) Sixth Semester (C.B.S.)

# Database Management Systems

P. Pages : 2 **TKN/KS/16/7500**

Time : Three Hours * 0 5 7 0 * Max. Marks : 80

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Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Assume suitable data whenever necessary.
9. Illustrate your answers whenever necessary with the help of neat sketches.

**1.** a) Explain the Limitations of file processing system. **6**

b) Explain four Relational Algebra Operation in detail with example. **7**

**OR**

**2.** a) List any 4 functions of DBA. **4**

b) Explain Levels of Abstraction in detail. **5**

c) Explain functions of DBMS. **4**

**3.** a) Explain the concept of Indexing. **6**

b) Explain Hashing techniques in detail. **7**

**OR**

**4.** a) Write in detail $B^+$ tree and its operation with example. **8**

b) Compare primary & secondary index. **5**

**5.** a) Define Entity, Entity set, relation and relationship set in ER Model. **6**

b) Explain functional dependency with example. **4**

c) Explain need & significance of Normal form. **4**

**OR**

**6.** a) List various ER Notations and meaning associated with notations. **6**

b) Define Normalization. Explain 1NF, 2NF, 3NF, 4NF with examples. **8**

**7.** a) What is query processing ? Explain each steps involved in query processing with proper diagram. **7**

b) How an expression can be evaluated with help of materialization & pipeline approach ? Explain in detail. **7**

**OR**

**8.** a) Explain the detailed overview of Query Optimizations. **7**

b) Explain with example, Transformation of relational expressions. **7**

**9.** a) Explain transaction with neat sketch diagram. Explain ACID properties in brief. **6**

b) Define cascading rollback, blind writes stable storage and deadlock. **7**

**OR**

**10.** Write short note on **any three.** **13**

a) Types of failure. b) Time stamp based protocol.

c) Shadow Paging. d) Transaction Atomicity.

**11.** a) Enlist and explain with example, various DDL commands. **6**

b) Discuss with example, various aggregate functions. **7**

**OR**

**12.** a) Write short notes on. **6**

i) Dynamic SQL ii) Embedded SQL

b) Explain various types of Join Expressions with examples. **7**

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