Subject code

PAPER ID-

Roll No. to be filled in your Answer Book

Roll No. | | | | | | | | | | |

B.Tech.

Computer Science Engineering,4th Sem

DATABASE MANAGEMENT SYSTEM(TCS/TIT-404)

Time- 3 Hours **Max marks: 100**

NOTE:

i. All questions are compulsory.
ii. Draw diagrams wherever necessary.
iii. Give suitable examples wherever necessary.
iv. All questions carry equal marks.

1. Attempt any **FOUR** parts of the following. 5 X 4

(A) What do you understand by the term DBMS explain with a suitable diagram?

(B) Explain the concept of E-R Diagram with example.

(C) Differentiate between Generalization and Specialization.

(D) Discuss at least two problems that occurs because of redundancy in database.

(E) Define DDL and DML in context with DBMS

2. Attempt any **FOUR** parts of the following 5 X 4

(A) Explain the concept of referential integrity constraints also explain their significance in DBMS.

(B) What do you understand by relational data model and what is its importance justify your answer?

(C) Explain different types of join in SQL giving suitable example in brief.

(D) What do you understand by functional dependency explain. Also differentiate between trivial and non-trivial functional dependency with example.

(E) Explain the Union and Intersection operation in SQL with example.

3. Attempt any **TWO** parts of the following 10X2

(A) What is Normalization? Explain the different type of normalization techniques in detail.

(B) For the relation R(A, B, C, D, E, F, G, H) we have following set of functional dependencies F= {CH → G, A → BC, B → CFH, E → A, F → EG}.

(i) Write down the set of all candidate keys possible for the relation.

(ii) Identify the highest normal form possible for the relation.

(C) Explain in brief dependency preserving decomposition and loss less join decomposition. Also let R(A, B, C, D) be a relation schema with the following functional dependencies F= {A→B, B→C, C→D, D→B}. If we decompose R into (A, B), (B, C) and (B, D) state whether the dependency is preserved or not in this decomposition.

4. Attempt any **TWO** parts of the following 10X2

(A) Explain ACID properties in detail with suitable examples. Also explain the importance of these properties in DBMS.

(B) Differentiate between the following:

(i) Concurrent schedule and serial schedule.

(ii) Recoverable and irrecoverable schedule.

(C) What do you understand by Conflict serializable schedule and View serializable schedule explain in detail with suitable example.

5. Attempt any **TWO** parts of the following 10 X 2

(A) Explain the significance of locking in database and differentiate between shared lock and exclusive lock with suitable example.

(B) What do you understand by concurrency control? What is two phase locking and its types explain.

(C) What is deadlock? Explain various deadlock handling techniques.

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