Total No. of Questions-8] [Total No. of Printed Pages-3

B.E. VI Semester Examination

BE-VI/6(A)

213644

COMP. ENGG.

Course No. COM - 603

(R D B M S)

Time Allowed- 3Hours *Maximum Marks-1*

Note: Attempt **five** questions, selecting any **two** questions from each section. All questions carry **equal** marks.

Section - A

1. a) Which of the following plays an important role in representing information about the real world in a database? Explain briefly.

i) The data definition language.

ii) The data manipulation language. **(5)**

b) What is data independence ? Explain the difference between physical and logical data independence with example. **(5)**

c) Discuss different levels of data abstraction? Explain each one of them. **(10)**

2. a) With the help of examples, explain the following terms briefly: entity set, one- to- many relationship, participation constraint, weak entity set. (3)

b) Give the comparative analysis of various data models such as hierarchical, network and relational with respect to

access, addition, deletion and updation of data. **(12)**

3. a) Define attribute. Explain different types of attributes with example. **(8)**

b) What is an E-R diagram? Explain with suitable example and their symbols. Consider a database used to record the marks that student gets in different exams of different course offerings. Construct and E-R diagram that model exams as entities and uses a ternary relationship for above database. **(12)**

4. a) List four significant differences between a file-processing system and a DBMS **(5)**

b) What do you mean by Indexing ? Explain General Indexing Technique **(8)**

c) Write short note on virtual memory. **(7)**

Section - B

5. a) Explain the following relational algebraic operations with the help of an example. **(12)**

i) Cartesian product

ii) Division

iii) Selection and Projection

iv) Join

b) How does SQL implement the entity integrity and referential integrity constraints of the relational data model? Explain with an example **(8)**

6. a) Give a set of Functional dependencies for the relation schema R(A,B,C,D,E) with primary key AB under which R is in 2NF but not in 3NF. **(5)**

b) Prove that any relation schema with two attributes is in BCNF. **(5)**

c) Define the role of Transaction. Then discuss the following with relevant example:

i) A read only transaction

ii) A read write transaction

iii) An aborted transaction **(10)**

7. a) Discuss recovery techniques in a DBMS. **(10)**

b) Define decomposition. State the properties that must be satisfied by a relation R to be decomposed into a set of relations. **(10)**

8. a) What is distributed database system ? How it is differ from centralized database system? Explain the use of distributed system. **(10)**

b) Briefly discuss various concurrency control schemes **(10)**