

Roll No. ....

**3030**

**B. Tech. 3rd Semester (CSE)  
Examination – March, 2021**

**DATABASE MANAGEMENT SYSTEMS**

Paper : PCC-CSE-201-G

Time : Three Hours ]

[ Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

*Note :* Attempt *five* questions in all, selecting *one* question from each Section. Question No. 1 is *compulsory*. All questions carry equal marks.

1. Write a short note on : 15
- (a) What is E-R Model ? Explain with the help of example.
  - (b) What is SQL Server ?
  - (c) What are the Web databases ?
  - (d) Explain ACID properties briefly.

- (e) Describe Relational Model.
- (f) Define QBE.

**SECTION - A**

- 2. What is Database Management System ? Explain 3-Tier architecture of Database Management System in detail. 15
- 3. Explain various types of DDL, DML and DCL languages in detail. 15

**SECTION - B**

- 4. Explain Relational algebra, Tuple and domain relational calculus. What is the importance of Relational Algebra in DBMS ? 15
- 5. Explain the following : 15
  - (i) Domain and data dependency
  - (ii) Query equivalence
  - (iii) Normal Forms

**SECTION - C**

- 6. Describe the following : 15
  - (i) Hashing

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- (ii) Index Sequential Files
- (iii) B-Trees

- 7. (a) What is Concurrency Control ? Explain various Lock-based Protocols. 7.5
- (b) Describe serializability among transactions. How Timestamp Ordering Protocol ensures serializability among transactions ? 7.5

**SECTION - D**

- 8. What are the different methods of access management DAC, MAC and RBAC ? 15
- 9. Explain the following : 15
  - (i) SQL Injection
  - (ii) Authorization and Access Control
  - (iii) Distributed Databases

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