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Total No. of Printed Pages: 1

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M. Comm. (Semester: 4th)
DATABASE MANAGEMENT SYSTEMS
Subject Code: MCSE0F99
Paper ID: [OE2210106]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It carries 16 marks. It consists of 4 questions of 4 marks each.
2. Section B consist of 4 questions of 8 marks each. The student has to attempt any 3 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(4 marks each)

- Q1. What are the main advantages of using a DBMS over a file system?
- Q2. Explain the purpose of SQL as a DML, DDL, and DCL.
- Q3. Define functional dependencies and explain their role in schema refinement.
- Q4. Differentiate between sparse and dense indexing with examples.

Section – B

(8 marks each)

- Q5. Explain database system architecture and describe the different layers of a DBMS.
- Q6. Describe the process of converting an ER model into a relational schema with an example.
- Q7. Explain the differences between BCNF and 3NF with suitable examples.
- Q8. Describe the structure and functionality of B-trees in indexing.

Section – C

(10 marks each)

- Q9. Discuss relational algebra and relational calculus as formal query languages with examples of basic operations.
- Q10. Explain the problems of lost updates and inconsistent reads, and describe how these can be managed in a database system.
- Q11. Explain the role of encryption and digital signatures in database protection with examples.