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Total No. of Printed Pages: 01

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B.Com (Hons.) (Semester: 6th)
DATABASE MANAGEMENT SYSTEMS I
Subject Code: BCSE0F95
Paper ID: [OE2140324]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 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

(2 marks each)

- Q1. Attempt the following:
- a. Discuss Grant and Revoke commands with respect to Database protection.
 - b. Differentiate between relational calculus and relational algebra.
 - c. Discuss an Entity in context of Entity Relationship model.
 - d. What do you mean by a Functional Dependency?
 - e. Describe Serializability.
 - f. What is a primary index?
 - g. Define Primary Key with example
 - h. Discuss data independence.
 - i. What do you mean by an integrity constraint?
 - j. Describe locks in Database Management System (DBMS).

Section – B

(5 marks each)

- Q2. What do you mean by ACID properties of DBMS transactions? Discuss Two-phase Commit Protocol in detail.
- Q3. What is a Data Model? Differentiate between Relational Model, Network Model, and Hierarchical Model.
- Q4. Explain 3-schema architecture of DBMS with diagram along with mappings.
- Q5. What do you mean by Access Control Mechanisms in a DBMS? Discuss Discretionary Access Control mechanism in detail.
- Q6. Discuss the advantages and disadvantages of database management system over traditional file system.

Section – C

(10 marks each)

- Q7. What is Normalization? Discuss first four forms of normalization with example.
- Q8. Write a short note on:
- a) File Organization
 - b) Lost Update Problem
 - c) Relational Calculus
- Q9. Consider the following database schema:
- HOTEL (hotelNo, name, city)
- ROOM (roomNo, hotelNo,type, price)
- BOOKING(hotelNo,guestNo, roomNo, dateFrom, dateTo,)
- GUEST(guestNo, name, city)
- Give SQL statements for the following queries:
- a) Create the table HOTEL.
 - b) Insert one row of data in BOOKING table taking suitable datatypes.
 - c) Update the name of Guest No. 1 to “Bhagwant Mann”.
 - d) List the bookings made between 31st August 2022 and 7th November 2022.
 - e) Give the names of all guests staying in hotel ‘HYATT’.