

Roll No. :

Bharati Vidyapeeth's
Institute of Computer Applications and Management (BVICAM)
A-4, Paschim Vihar, New Delhi-63
FIRST SEMESTER [MCA] Supplementary Examination, NOVEMBER 2024

Paper Code: MCA-107

Subject: Database and Management Systems

Time: 3 Hours

Maximum Marks: 60

Note: Attempt any FIVE questions in all. Question No. 1 is compulsory, and attempt one question from each unit.

Q1 Attempt any Four of the following questions: (Marks:4*5=20)

- (a) Discuss Object oriented concepts in Database Management Systems.
- (b) Differentiate between hierarchical and network database management system.
- (c) Explain various outer and inner Joins Operations in database.
- (d) Explain tuple relational calculus with an example.
- (e) Differentiate between 2NF and 3NF.
- (f) Provide specific examples of triggers you would implement, detailing their purpose and the outcomes they would achieve in the system
- (g) With an example explain log- based recovery.
- (h) How deadlock is handled in a transaction system.

Q2 Draw an extended E-R diagram of a Hospital Management System. Explain the details. (Marks:10)

OR

Q3 Discuss the limitations of relational databases. (Marks:10)

Q4 Write a short note on DML, DDL, DCL and TCL. (Marks:10)

OR

Q5 Explain the following terms taking an example for each: (Marks:10)

- a Entity Integrity
- b Referential Integrity

- c Domain Constraints
- d Key Constraints

Q6 Compare procedures and functions in PL/SQL. **(Marks:10)**

OR

Q7 For given relation $R = \{A, B, C, D, E\}$ FDs = $\{A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A\}$. Find Primary Key and normalize till 3 NF. **(Marks:10)**

Q8 Elaborate various ways to test serializability of the schedule **(Marks:10)**

OR

Q9 Discuss the database security concepts **(Marks:10)**
