Progressive Education Society's

Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16 (Autonomous)

End Semester Examination: Mar./Apr. 2025

***Total No. of Questions**: 3 / 16* ***Total No. of Pages**:2*

FIRST YEAR (B.Sc. Computer Science)

24CMP12101: DBMS & RDBMS

(Semester II)

Program: B.Sc Computer Science(BSc Comp05) **Credits:** 2
Program Specific: Computer Science **Time:** 2 Hours
Course Type: Major Mandatory **Max. Marks:** 30
Paper: I

Instructions to the candidate:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labelled diagram wherever necessary.*

Q1) Attempt **ANY FIVE** of the following: **[5X2 = 10]**

a) Define DBMS.
b) List any four advantages of using a DBMS.
c) What are the different levels of abstraction in DBMS?
d) Define Strong Entity and Weak Entity.
e) Explain any two set operations in SQL.
f) What is the difference between DDL and DML?
g) How does a Tuple differ from an Attribute in a relational database?

Q2) Attempt **ANY THREE** of the following: **[3X4 = 12]**

a) Draw and explain the structure of DBMS.

b) Consider the following entities: STUDENT (Roll_No, Name, Age, Course_ID) and COURSE (Course_ID, Course_Name, Credits). Construct an ER diagram representing the relationship between them.

c) Explain the process of converting an ER model into a relational model with an example.

d) Consider a relation Employee(e_no,e_name,city,mobileno) and write query in SQL:

   i) Display city of an employee whose name starts with 'S'.

   ii) Display all information of an employee whose mobile no is 8887657456.

e) Discuss different types of joins in SQL with suitable examples.

Q3) Attempt **ANY TWO** of the following: **[2 X 4 = 08]**

a) Critically analyse the advantages and limitations of using a Database Management System (DBMS) over a File System.
b) Explain the concept of generalization and specialization in an ER model. Represent the diagram.
c) Define the following integrity constraints in a relational database:
   i) Primary Key
   ii) Referential Integrity
   iii) Unique Constraint
   iv) Null Constraint
   v) Check Constraint
d) Define aggregate functions in SQL and explain any three with suitable example.

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