Please check that this question paper contains 9 questions and 2 printed pages within first ten minutes.

EVENING

[Total No. of Questions: 09]
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Program: B.Tech. (Batch 2018 onward)
Semester: 4
Name of Subject: Database Management System
Subject Code: PCIT-104
Paper ID:16233
Scientific calculator is Allowed

Time Allowed: 03 Hours **Max. Marks: 60**

NOTE:

1) Parts A and B are compulsory
2) Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
3) Any missing data may be assumed appropriately

Part – A **[Marks: 02 each]**

Q1.

a) Elaborate the concept of Logical database Design.

b) Write a short note on data marts?

c) Explain the use of triggers in database management systems.

d) Why functional dependencies are significant in DBMS?

e) Differentiate between super key and primary key.

f) Write a query to get the highest, lowest, sum, and average salary of all employees from *"employee"* table having EMPLOYEE_ID, SALARY, FIRST_NAME columns.

Part – B **[Marks: 04 each]**

Q2. Discuss first three forms of Normalization using relevant examples.

Q3. Elaborate the significance of ACID properties of database management system with the help of some real examples.

Q4. Define Data Mining. Explain different applications of Data Mining.

Q5. Design a database of any case study using NoSQL database terms and terminology.

Q6. Design an ER diagram for Library management system. Take "Books", "Publisher", "Member" and "borrewed by" as entities.

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Q7. Why do deadlock occurs? Create the complete process of deadlock detection and resolution with significant example.

Part – C **[Marks: 12 each]**

Q8. Compare different types of data models used in database management systems.

OR

What is Database Recovery? Explain the different types of database failure and types of recovery techniques with advantages and disadvantages.

Q9. Design a database tables to demonstrate the 1NF, 2NF, 3NF and BCNF in DBMS with detailed example.

OR

Design the SQL queries for the following: **(3 marks each)**

1. Create a table and Insert 3 rows
2. Create two tables and Select the data from both the tables using joins.
3. Add and drop a primary key, foreign and unique key constraints
4. Update and delete the data from table using where constraints

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