2020

COMPUTER SCIENCE — GENERAL

Paper : DSE-A-1

[Database Management System (DBMS)]

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Day 1

Answer **question no.** **1** and **any four** questions from the rest.

1. Answer **any five** questions : 2×5

   (a) Define schema.

   (b) What is the purpose of normalization?

   (c) What do you mean by an entity?

   (d) Define foreign key with example.

   (e) Write any 2 command names for DML and DCL both.

   (f) What is meant by degree of relation?

   (g) What do you mean by project operation?

   (h) Write the difference between delete and truncate command.

2. (a) Distinguish between strong and weak entity set with suitable example.

   (b) Briefly explain the role of DBA.

   (c) Explain 2NF. 5+3+2

3. (a) Explain different types of relationship in DBMS with example.

   (b) Write the difference between primary key and unique key. Give example for both.

   (c) Define tuple. 5+3+2

4. (a) Briefly describe 3NF. Why is BCNF stronger than 3NF?

   (b) What do you mean by data abstraction in DBMS?

   (c) Define metadata. (3+3)+2+2

Please Turn Over

5. (a) Explain the 3-tier architecture of DBMS.

(b) Explain left outer join and full outer join with proper example. 5+5

6. (a) Differentiate between 'having' and 'where' clause with suitable example.

(b) Define derived attribute with example.

(c) How can division operation be expressed using fundamental operations of Relational algebra?
(2+2)+3+3

7. (a) Write the syntax of using set difference function.

(b) What are the different advantages of DBMS over file system?

(c) Draw an ER diagram for the following scenario :

A database will be made to store information about patients in a hospital. On arrival, each patient's personal details (name, address and telephone number) are recorded where possible, and they are given an admission number.

They are then assigned to a particular ward (Accident and Emergency, Cardiology, Oncology etc.). In each ward there are a number of doctors and nurses. A patient will be treated by one doctor and several nurses over the course of their stay, and each doctor and nurse may be involved with several patients at any given time. 1+4+5

8. (a) Explain the method of converting ER diagram containing generalization and specialization to relational model with proper example.

(b) Distinguish between candidate key and super key with proper example.

(c) What is dependency preservation in DBMS? 5+3+2

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