

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 3

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

1. Answer **any five** questions : 2×5
 - (a) What is foreign key in relational database?
 - (b) What is Data dictionary?
 - (c) What are the different mapping cardinalities?
 - (d) What is database schema?
 - (e) What is query in DBMS?
 - (f) What is candidate key?
 - (g) Why is a relation normalized in DBMS?
 - (h) What is functional dependency?

2. Discuss the main characteristics of database storage. How does it differ from traditional file system based storage? 5+5

3.
 - (a) What are the responsibilities of the Database Administrator?
 - (b) What is the difference between Logical and Physical data independence? 5+5

4. Explain the difference between the following with suitable example :
 - (a) Strong entity and Weak entity.
 - (b) Specialization and Generalization. 5+5

5.
 - (a) Draw an ER diagram for library management system.
 - (b) Specify the assumptions and mapping cardinality. 5+5

Please Turn Over

6. Give a relation which is in 2NF but not in 3NF. Convert this relation to 3NF. 5+5
7. (a) In what sense does relational algebra differ from relational calculus?
(b) Mention any two operations of relational algebra with suitable example.
(c) Why SQL is called a relationally complete language? 3+4+3
8. (a) Derive division operation using basic relational algebra operations.
(b) Explain with example select and project operations of relational algebra. 4+6
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