

2022

Computer Science

[P.G.]

(CBCS)

(M.Sc. Third Semester End Examination-2022)

PAPER-304

Database Management System

Full Marks: 50

Time: 02 Hrs

The figures in the right hand margin indicate marks

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

Illustrate the answers wherever necessary

1. Answer any five questions of the following: 5x2= 10

- a) Why do you need a foreign key?
- b) Why data dictionary is used?
- c) "A super key is always a candidate key" True or false? Justify your answer.
- d) What is view serializability?
- e) What is data redundancy? How it is removed?
- f) Explain weak entity with example.
- g) What is partial dependency?
- h) What is transaction?

(2)

2. Answer any four questions of the following: 4x5 = 20

a) Let R (ABCDEF) be a relational schema in which the following functional dependency holds.

$FD : \{AB \rightarrow C, C \rightarrow DE, E \rightarrow F, F \rightarrow A\}$

Check the highest normal form.

- b) Explain three layer architecture of DBMS with proper diagram.
- c) Write down the basic operation of relational algebra with example.
- d) Why normalization is used in DBMS? Why does BCNF is stronger than 3NF? What are the conditions of 5NF?
- e) Describe ACID properties of a transaction.
- f) "A super key is always a candidate key" True or False? Justify with suitable examples.
- g) In concurrent schedule, when do two instructions conflict?
- h) What are the difference between DDL, DML and DCL in SQL?

3. Answer any one question of the following: 1x10 = 10

a) What do you mean by lossless decomposition? What are the different types of anomalies in DBMS? What is strict 2PL?

Write down SQL for following relations Employee (employee-name, street, city) works (employee-name, Company-name, salary)

3+2+2+3

b) Write short note on the following topic (any two) 5x2

i) DBA

(3)

ii) Two-Phase Locking

iii) Data Dictionary

iv) Armstrong's Axioms

Internal Assessment :10
