

2021

Computer Science

[M. Sc]

(CBCS)

(M.Sc. Third Semester End Examination-2021)

PAPER-304 (CBCS)

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

Group A

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

- a) Write down the difference between database and database management system.
- b) Write down name of some popular dbms soft ware.
- c) Explain the role of DBA.
- d) What is partial functional dependency?
- e) Define primary key with suitable example
- f) Define foreign key.
- g) What is weak entity?
- h) What is view serializability?

(2)

Group B

2. Answer any FOUR questions of the following: 5x4 = 20

- a) Write down the difference between relational algebra and relational calculus. What is procedural and non procedural language? 2.5+2.5
- b) What are different types of anomalies in DBMS (explain briefly). Explain different types of constraints used in DBMS 3+2
- c) Explain different data abstraction with proper diagram? 1+2+2
- d) Describe ACID properties of a transaction.
- e) 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.
- f) Write a short note on DML.
- g) "A superkey is always a candidate key" True or false? Justify with suitable example.

Group C

3. Answer any ONE questions of the following: 10x1 = 10

- a) Why specialization is called top down approach in DBMS? What are the criteria needs to satisfy for natural join? What do you mean by lossless and lossy joining.

(3)

Write down SQL for following relations

Employee (employee-name, street, city)

Works (employee-name, Company-name, salary)

- i) Increase 10 % salary for all employees whose name starts with "a"
- ii) find all the employee details with salary. 2+2+2+4
- b) Explain the three-layer architecture of DBMS. Write the difference between physical data independence and logical data independence. Why Normalization is used in DBMS? Why does BCNF is stronger than 3NF. Discuss with example.

[Internal Assessment 10 marks]
