

Total No. of printed pages = 4

63/2 (SEM-1) CSIT 1.4

2021

(held in 2022)

CSIT

(Theory Paper)

Paper Code : CSIT-1.4

(Advanced Database Management Systems)

Full Marks – 100

Time – Three hours

The figure in the margin indicate full marks
for the questions.

1. Answer for the following questions : $1 \times 6 = 6$

- (a) What is characteristics of Primary Key ?
- (b) Which normal form depends upon the property of transitivity ?
- (c) By which term the size of data is known ?
- (d) How relation is different from relation state ?

[Turn over

- (e) What is participation in ER Diagram ?
- (f) What is data abstraction in DBMS ?

2. Answer any *five* from the following questions :
3×5=15

- (a) How composite attribute is different from atomic attribute ? Explain with example.
- (b) Define DBMS. Give brief description on the disadvantages of DBMS.
- (c) What is cascading rollback ? Explain with example.
- (d) How natural join is different from equijoin ? Explain with example.
- (e) Mention the inference rules for functional dependencies.
- (f) Difference between prime and non-prime attributes.

3. Answer any *five* from the following questions :
4×5=20

- (a) How SELECT operation works ? Retrieve the name and address of all employees who work for the Research Department.
- (b) Discuss the three schema architecture of DBMS.

- (c) Define schema. How is it different from relation ? Explain.

- (d) What are the ACID properties in transaction processing ? Mention all.

- (e) Discuss the syntax of the following :
CREATE, INSERT, UPDATE, ALTER, DELETE with proper examples.

- (f) Discuss the DIVISION operation in relational algebra with example.

4. Answer any *five* from the following questions :
6×5=30

- (a) Draw an ER Diagram for Student Management System for Bodoland University.
- (b) Write a technique for transforming ER model to relation schema with example.
- (c) Discuss the informal design guidelines for relation schema with proper example.
- (d) Write an algorithm for finding a Minimal Cover F for a set E of functional dependencies. Find the minimal cover. Find the minimal cover of the following set F of functional dependencies

$$F = \{B \rightarrow A, D \rightarrow A, AB \rightarrow D\}$$

- (e) Discuss the different types of normal forms with proper examples.
- (f) What is conflict serializability ? How to test for conflict serializability of a schedule ? Discuss with examples.

5. Write short notes on any *three* : 3×3=9

- (a) Foreign Key
- (b) Primary Key
- (c) Transaction Processing
- (d) Data Fragmentation.