

TDC Even Semester Exam., 2019

COMPUTER APPLICATION

(Honours)

(4th Semester)

Course No. : BCAC-402

(Database Management System)

Full Marks : 35

Pass Marks : 12

Time : 2 hours

*The figures in the margin indicate full marks
for the questions*

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. (a) What is DBMS? Write the functions of a DBMS. 1+3=4
- (b) Define the following : 3
- (i) Data definition language
- (ii) Data independence
- (iii) Referential integrity

2. Define the following : 2+2+3=7
- (a) Data abstraction
- (b) Data model
- (c) ER-diagram

UNIT—II

3. Define the following : 3+4=7
- (a) Relational calculus
- (b) Relational algebra
4. (a) Define SQL. 2
- (b) With suitable example, show how assertions and triggers are created in SQL. Also explain the purpose of assertions and triggers. 3+2=5

UNIT—III

5. (a) What is lossless join property of a decomposition? Why is it important? 1+2=3
- (b) Define the following : 2+2=4
- (i) Normalization
- (ii) Partial dependency

6. (a) State the inference rules for functional dependency. 4
(b) Show that if a relational schema is in BCNF, it is also in 3NF. 3

UNIT—IV

7. (a) What is a query execution plan? 2
(b) What are the differences between primary and secondary indexes? How does multilevel indexing improve the efficiency of searching an index file?
2+3=5
8. (a) What is the goal of query optimization? 3
(b) Discuss the reasons for converting SQL queries into relational algebra queries before query optimization is done. 4

UNIT—V

9. With a suitable example, explain the two-phase locking protocol. Also explain how the protocol guaranty serializability. 7
10. What is transaction log? What are transaction commit points and why are they important? 7
