

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

BCA (2011 & Onward) (Sem.-4)

Subject Code : BSBC-404

Paper ID : [B0243]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.**

SECTION-A

1. Write briefly :

- What are the objectives of a database system?
- Define logical data independence.
- Define aggregation as used in ER model.
- What is the difference between cardinality and degree of a relation?
- Differentiate between strong and weak entity sets.
- What is multi-valued dependency? Explain with an example.
- What are primary, secondary and candidate keys?
- Define database recovery.
- Define referential integrity.
- What are the security threats to databases?

SECTION-B

- 2 Elaborate the three-level architecture of database systems.
- 3 What are data models? Compare the Network, Hierarchical and Relational data models.
4. Write the relational algebraic expression for the following queries using the given schema:

Project (Pno, PName)

Employee (Eno, EName)

Assigned To (Pno, Eno)

- a) Find name of employees working on project no. 101
 - b) Find details of employees who are working on project named "DBMS"
 - c) Find employee number of employees working on project on which employee number 1 is also working.
5. What is Normalization? Discuss the 1st, 2nd 3rd and BCNF normal forms.
 6. What are the various methods of concurrency control? Explain in detail the two-phase locking protocol.
 7. What do you mean by Distributed databases? What are the fragmentation policies used in distributed databases? Discuss each with an example.