

Total number of printed pages-3

53 (EC 813) DBMS

2021

DBMS

Paper : EC 813 (Back)

Full Marks : 100

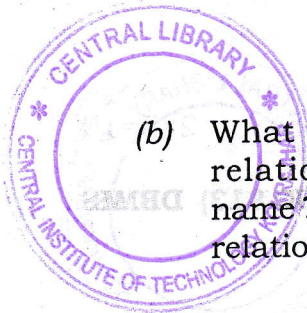
Time : Three hours

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

Answer **any five** questions.

1. (a) Define various normal forms citing appropriate example. 10
- (b) What do you mean by DBMS ? Describe three-schema architecture of DBMS. 2+8=10
2. (a) Define cardinality ratio of binary relationship type. What are its various kinds ? Give examples of each. 2+8=10

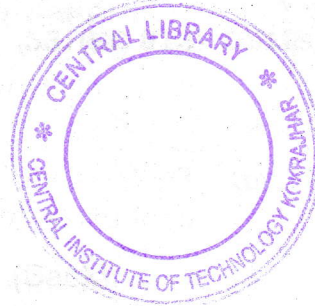
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- (b) What do you mean by degree of a relationship type? What is a role name? How is it important for recursive relationships? 2+2+6=10
3. (a) Discuss various types of locks used in concurrency control. 10
- (b) Describe optimistic concurrency control technique. 10
4. (a) Define weak entity type, owner entity type, identifying relationship and partial key. Give example. 10
- (b) What is the difference between 3NF and BCNF? 4
- (c) What is data independence? What are their types? Which one of them is harder to achieve? 6
5. (a) Draw a transaction state diagram and discuss the typical states that a transaction goes through during execution. 10
- (b) Discuss about deadlock and starvation. Write about *any* deadlock prevention scheme. 10

6. (a) Define the following terms: $2 \times 5 = 10$

- (i) Entity
- (ii) Domain
- (iii) Attribute
- (iv) DDL and
- (v) DML



(b) What do you mean by a transaction in DBMS? What are the ACID properties of a transaction? $2+8=10$

7. (a) What are the advantages of DBMS approach over traditional file system? 10

(b) Draw an E-R diagram of a 'COMPANY' database considering employees, their departments and projects undertaken. 10