

- (iii) Bank employees are identified by their employee-id values. The bank also keeps packs of the employee's start date and thus length of employment.
- (iv) The Bank offers two account Saving and Banking account. Account can be held by more than one customer and a customer has more than one account.
- (v) A loan is originated at a particular branch and can be held by one or more customers. The Data and Time are recorded for each payment.

16

UNIT - II

- 2 (a) How does Tuple Relational Calculus differ from Domain Relational Calculus. 8
- (b) Differentiate between Degree and Cardinality of a relation. 8

OR

- 2 Write short notes on the following :
 - (i) Internet Data Base
 - (ii) Object Oriented Data Base System
 - (iii) Integrity constraints
 - (iv) Join Dependency
 - (v) Multivalued Dependencies.

16

UNIT - III

- 3 (a) What is normalization ? How is it useful in a good Data Base Design ? 6
- (b) Discuss the purpose of BCNF and describe how BCNF different from 3NF. Provide an example to illustrate your answer. 10

OR

- 3 What do you mean by serializability ? Discuss the conflict and view serializability with suitable example. Discuss the testing of serializability also. 16

UNIT - IV

- 4 What is log ? How is it maintained ? Discuss the salient features of deferred DataBase modification and immediate DataBase modification strategies in brief.

16

OR

- 4 What is Recoverable schedule ? Why is recoverability of schedule desirable ? Are there any circumstances, under which it would be desirable to allow non-recoverable schedule ?

16

UNIT - V

- 5 Construct a B^+ tree for the following set of key value (2, 3, 5, 7, 11, 17, 19, 23, 29, 31). Assume that the tree is initially empty and values are added in ascending order. Construct B^+ trees for the cases where the number of pointers that will fit in one node is as follows :

- (i) Four
- (ii) Eight.

16

OR

- 5 (a) What is the difference between a clustering index and a secondary index ?

8

- (b) Describe Static and Dynamic Hashing.

8

