

Con. 3266-11.

RK-1882

(3 Hours)

[Total Marks : 100]

N.B. 1) Question No. 1 is compulsory.

2) Attempt any four out of remaining six questions.

3) Figures to the right indicate full marks.

- Q.1. a) Draw E-R diagram for online Railway Ticket Reservation system. Convert E-R diagram into tables. 10
- b) Describe the overall Architecture of DBMS with the diagram. 10
- Q.2. a) Explain why 4NF is a normal form more desirable than BCNF. 10
- b) Give the advantages of DBMS over file system. 10
- Q.3. a) Explain Organization of records in files, in the sequential file organization, why is an overflow block used even if there is, at the moment, only one overflow record? 10
- b) What is transaction? Discuss ACID properties of transaction. 10
- Q.4. a) Explain the distinction between closed and opened hashing. Discuss the relative merits of each technique in database application 10
- b) For given database, write SQL queries. 10
- Employee ( EID, Name, Street, City)
- Works(EID, CID, Salary)
- Manager (EID, Manager\_Name)
- Company( CID, Company\_name, City)
- i) Modify the database so that 'PRATHAM' now lives in "USA"
- ii) Find all employees in the database who live in the same cities as the company for which they work.
- iii) Give all employees of 'SHARAYU Steel' a 10% raise in salary.
- Q.5. a) 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? Explain your answer. 10
- b) Explain the type of constraints with an example. 10
- Q.6. a) When a transaction is rolled back under timestamp ordering, it is assigned a new timestamp. Why can it not simply keep its old timestamp? 10
- b) Explain in detail Log-Based recovery. 10
- Q.7. Write short notes on any TWO: 20
- a) B+ Tree
- b) Shadow Paging
- c) Group by and order by clause in SQL.
- d) Triggers