R18 Regulation *Subject code:* 2P4ED

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech IV Semester Supplementary Examinations, July 2022

Database Management Systems

(CSE)

Maximum Marks: 70 Date:28.07.2022 Duration: 3 hour

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 What are the types of languages a database system provides? Explain.
2 Explain levels of data abstraction.
3 Explain two types of participation constraints?
4 What is meant by degree of relationship set?
5 Explain trivial dependencies?
6 What is super key?
7 Define a Transaction? List the properties of transaction.
8 Define Two Phase Commit protocol?
9 Difference between primary and secondary index?
10 What is a duplicate data entry in an index? Can a primary index contain duplicates?

Part-B

Answer All the following questions. (10M X 5=50Marks)

11 Describe relational databases, how they have been used in the past, and how they are used currently to implement solutions in technology. [10]

OR

12 Draw an Entity Relationship (ER) for railway reservation system. [10]

13 Consider the following relational schema: [10]
Person(ss#, name, address)

Cv(registration_no, year, model)
Accident(date, driver, car _reg_no)
Owns(ss#, license)

Construct the following relational algebra queries:

i) Find the names of persons who are involved in an accident.

Find the registration number of cars which were not involved in any accident.

OR

14 Consider the following relational database: [10]
Employee(employee-name, street, city)
Works(employee-name, company-name, salary)
Company(company-name, city)
Manages(employee-name, manager-name)
Give an SQL DDL definition of this database. Identify referential-integrity constraints that should hold, and include them in the DDL definition.

15 Consider the relational schema R = (ABCD) and the set of functional dependencies
F = {AB->C, B->D, C ->A} .
a) Prove that R is not in.BNCF.
b) Suitably decompose R into appropriate relational schemas that are in BCNF.
c) Is the obtained decomposition lossless? Is the obtained decomposition dependency preserving?
d) If you were allowed to have relational schemas that are in 3NF, what would have been the decomposition (possibly containing schemas that are in 3NF but not in BCNF)? [10]

OR

16 Explain different Normal forms based on functional dependencies. [10]

17 Describe Timestamp based locking protocols? [10]

OR

18 Explain Buffer Management? [10]

19 Write in detail about index data structures? [10]

OR

20 Why are tree-structured indexes good for searches especially range selections? [10]