BCA (Sem-4)
DATABASE MANAGEMENT SYSTEMS
Subject Code : UGCA1922
M.Code : 79726
Date of Examination : 21-06-2023

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 have to attempt any FOUR questions.

SECTION-A

1. Write briefly :

   a) Why is the use of DBMS recommended? Explain by listing some of its major advantages.

   b) What is the purpose of SQL?

   c) Explain the concept of ACID properties in DBMS.

   d) What is the different type of relationships in the DBMS?

   e) What is BCNF?

   f) What is DBMS?

   g) Do we consider NULL values the same as that of blank space or zero?

   h) What is distributed database?

   i) How database triggers are used?

   j) Explain the terms specialization and generalization.

SECTION-B

2. What is the purpose of normalization in DBMS? How BCNF is different from 3NF? Explain with example.

3. What are the different types of keys in the database? Out of these keys which one are used in normalization. Explain any two normal forms using keys.

4. **Consider the Sailors-Boats-Reserves Database given below with name and fields:**

   s (sid, sname, rating, age)

   b (bid, bname, color)

   r (sid, bid, date)

   Write each of the following queries in SQL along with the explanation for each.

   a) Find all sailor id's of sailors who have a rating of at least 8 or reserved boat with id 103.

   b) Find the sailor id's of sailors with age over 20 who have not reserved a boat whose name includes the string "thunder".

   c) Find the sailor id's of sailors whose rating is better than some sailor called Bob.

   d) Find the colors of boats reserved by Albert.

5. Consider Dean Academic Affairs (DAA) office of your institute that maintains data about the following entities: (a) courses, including number, title, credits, syllabus and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s), timings and classroom; (c) students, including student-id, name and program and (d) instructors, including identification number, name, department and title. Further, the enrolement of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modelled. Construct an E-R diagram for the DAA office. Document all assumptions that you make about the mapping constraints. Can we have a weak entity in the given scenario?

6. What is concurrency management? Explain 2PL in detail.

7. Explain join dependency and how they are maintained?

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.