

**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)**  
**B.Tech.Sem - IV COMPUTER :SUMMER- 2022**  
**SUBJECT : DATABASE MANAGEMENT SYSTEM**

Day : Wednesday  
Date : 22-06-2022

**S-24236-2022**

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

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**N.B.:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Draw neat and labelled diagram **WHEREVER** necessary.
  - 4) Assume suitable data if necessary.
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**Q.1** Explain in detail about the three tier schema architecture of DBMS. **[10]**

**OR**

**Q.1** Write SQL Queries for following tables: **[10]**

Sailors(sid:integer,sname:string,rating:integer,age:real)

Boat(bid:integer,bname:string,color:string)

Reserves(sid:integer,bid:intger,day:date)

Write the following queries in SQL

- i) Find the average age of sailor who are eligible for voting for each rating level that has atleast two sailors.
- ii) Find the name of sailors who have reserved both red and green boat.
- iii) Find the sailor\_id of sailors who have reserved a red boat.

**Q.2** Discuss in detail the operator SELECT, PROJECT and UNION with suitable example. **[10]**

**OR**

**Q.2** Consider the following relational database of a college **[10]**

Student(Roll Number, studentName,Address)

Teacher(TeacherID,TeacherName,Teachingsubject)

College(RollNumber,TeacherID)

- i) Find the name of teacher who teaches Database management System subject.
- ii) Find the name of students who live in Lalitpur.
- iii) Find the name of teacher who teaches computer organization subject to John smith student.
- iv) Insert new tuples into relation teaches.

**Q.3** Construct an E-R model for Hotel management system and convert it into Normalized relation. **[10]**

**OR**

**Q.3** What is functional dependency? Explain in detail its use in database design. **[10]**

**Q.4** Describe different methods of defining indexes on multiple keys. **[10]**

**OR**

**P.T.O.**

- Q.4** Write a short note on following: [10]  
a) Differentiate between Static and Dynamic hashing.  
b) Measure of query cost.

- Q.5** Explain Two phase locking protocol. What benefits does strict two-phase locking protocol provides? Discuss it's disadvantages. [10]

**OR**

- Q.5** What is time stamp ordering? Explain how it is used for concurrency control. [10]

- Q.6** What do you understand by distributed databases? Give the various advantages & disadvantages of distributed database management system. [10]

**OR**

- Q.6** a) Explain database lifecycle in detail [05]  
b) Write a short note on following: [05]  
Decision support system

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