

**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU -27**

**B.Sc– IV SEMESTER**

**END SEMESTER EXAMINATION: APRIL 2023**

**(Examination conducted in May 2023)**

**CS422 DATABASE MANAGEMENT SYSTEMS AND SOFTWARE ENGINEERING**

**(For current batch students only)**

**Time: 2 Hours Max Marks: 60**

**This paper contains two printed pages and three parts.**

**PART-A**

 **ANSWER ALL THE FOLLOWING QUESTIONS (2\*5=10)**

1. List any two characteristics of DBMS.
2. Give SQL commands of Drop and Delete table.
3. What are the problems caused by redundancy?
4. Software fails after it passes acceptance testing. Justify.
5. What is the importance of software design?

**PART-B**

 **ANSWER ANY FIVE OF THE FOLLOWING QUESTIONS (4\*5=20)**

1. Explain three levels of data abstraction in DBMS.
2. Discuss in detail the operators SELECT and PROJECT with suitable example.
3. Explain BCNF with an example.
4. Write short notes on

(i) Database Administrator. (2 marks)

(ii) TCL commands. (2 marks)

1. High cohesion and low coupling is required for efficient software. Why?
2. Explain how the principles underlying agile methods lead to the accelerated development and deployment of software.
3. What is the difference between verification and validation? Explain with an example.

**PART-C**

**ANSWER ANY THREE OF THE FOLLOWING QUESTIONS (10\*3=30)**

1. Consider the following COMPANY database

 EMP(Name,SSN,Salary,SuperSSN,Gender,Dno)

 DEPT(DNum,Dname,MgrSSN,Dno)

 DEPT\_LOC(Dnum,Dlocation)

 DEPENDENT(ESSN,Dep\_name,Sex)

 WORKS\_ON(ESSN,Pno,Hours)

 PROJECT(Pname,Pnumber,Plocation,Dnum)

Write the relational algebra queries for the following. (2 marks each)

(i)Retrieve the name, address, salary of employees who work for the Research department.

(ii) find the names of employees who work on all projects controlled by department number 3.

iii) Retrieve the SSN of all employees who either in department no :3 or directly supervise an employee who work in department number :3

(iv) Retrieve each department number, the number of employees in the department and their average salary.

(V) find the name of all employees who work on all projects controlled by department number 2.

1. Write the SQL Query for the following database schema: (2 marks each)

Works(pname,cname,salary)

Lives(pname,street,city)

Located\_in(cname,city)

Manager(pname,Mgrname)

1. Find the name of all person who lives in city ‘BANGALORE’
2. Retrieve the name of all persons of ‘CTS’ whose salary is in between Rs 50,000 and 60,000
3. Find the name of all person who lives and works in the same city.
4. Find the average salary of “TCS” persons.
5. Retrieve the name of all persons and manager names who works in ‘TCS’ and salary is in between Rs 50,000 and 1 lakh.
6. (a) Umbrella activities occur throughout the software process. Do you think they are applied evenly across the process or are some concentrated in one or more framework activities. Justify. (5 Marks)

(b) List the differences between Black box testing and White box testing. (5 Marks)

1. (a) Discuss in detail about Requirement Engineering. (3Marks)

(b) What is extreme programming? Explain the activities involved in the XP process.

 (7Marks)

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