

Total No. of Questions : 8]

SEAT No. :

PD4111

[Total No. of Pages : 3

[6402]-71

S.E.(AIML)

**DATABASE MANAGEMENT SYSTEM
(2019 Pattern) (Semester - IV) (218554)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

Q1) a) Consider the following schema for a company database Employee (Name, SSN, Address, Sex, Salary, Dno) Department (Dname, Dnumber, MGRSSN, MGRSTART Date) Dept-Locations (Dnumber, Dlocations) Project(Pname, Pnumber, Plocations, Dnum) Works-on (ESSN, PNo, Hours) Dependent (ESSN, Dependent-name, Sex, Bdate, Relationship)[8]

Give the queries in SQL:

- i) Retrieve the names and address of employees who work for "Research" Department.
 - ii) List all the project names on which employee "Smith" is working.
 - iii) Retrieve all employees in Dept. 5 whose salary is between 30,000 and 40,000.
 - iv) Retrieve the name of each employee who works on all the projects controlled by department number 5.
- b) Compare stored procedure and functions from PL-SQL. [5]
- c) What is the significance of views in SQL? Give SQL statement to update data. [5]

OR

P.T.O.

- Q2) a)** Use the schema and answer the queries in SQL. SAILORS (Sid, Sname, rating, age) BOATS (bid, bname, color) RESERVES (sid, bid, day) [8]
- Find names of sailors who reserved green boat
 - Find the colors of boats reserved by "Ramesh"
 - Find names of sailors who have reserved a red or a green boat
 - Find the names of the sailors who have reserved a red boat
- b) What is trigger? How it works? Explain with the help of example. [5]
- c) Explain with an example aggregate functions and grouping used with SQL. [5]
- Q3) a)** Define BCNF. How does it differ from 3NF? What is it considered a stronger form of 3NF? Explain with appropriate example. [8]
- b) What do you mean by equivalent minimal set of functional dependencies? Explain with example. [5]
- c) What do you mean by [4]
- Insertion Anomaly
 - Deletion Anomaly
- OR
- Q4) a)** Which are various measures of query cost? Explain with example. [8]
- b) What is the dependency preservation property for decomposition? Why is it important? [5]
- c) Explain each of the following with example [4]
- 1NF
 - 2NF
- Q5) a)** What is schedule? What are the various ways for serializability checks? [6]
- b) What is deadlock? Explain how deadlock detection and prevention is done. [6]
- c) When schedule can be called as recoverable schedule? Explain with example. [6]

OR

- Q6)** a) What is concept of Transaction? Which properties transaction must ensure? Explain each property. [6]
b) Compare two protocols used for concurrency control. [6]
c) Write short note on: Shadow paging. [6]

- Q7)** a) Explain architecture of parallel database. [6]
b) How atomicity is ensured in distributed databases? Explain protocol used for it. [6]
c) Write short note on NoSQL databases. [5]

OR

- Q8)** a) What are various data distribution strategies in distributed databases? [6]
b) Explain 2 tier and 3 tier architecture of databases with suitable diagram. [6]
c) Write short note on XML databases. [5]

