

Total No. of Questions : 8]

SEAT No. :

**P1603**

[Total No. of Pages : 3

**[6002]-233**

**S.E. (Artificial Intelligence & Machine Learning)**

**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 side indicate full marks.
- 4) Assume Suitable data if necessary.

**Q1) a)** Explain Different type of join with suitable example. **[6]**

b) Consider following Database. **[6]**

Student(roll\_no, name, address)

Subject(sub\_code,sub\_name)

Marks(roll\_no, sub\_code, mark)

Write following queries in SQL:

- i) Find Average marks of each student along with name of student.
  - ii) Find how many Student have failed in the subject DBMS.
- c) Write a note on Embedded and Dynamic SQL. **[5]**

**OR**

**Q2) a)** What is view? How is it created and stored? List two major problem with modification of database through view. **[6]**

b) Suppose there are two relation r and s such that the foreign key B of r references the primary key A of s. Describe how the trigger mechanism can be used to implement the on delete cascade option when a tuple is deleted from s. **[6]**

c) Explain Set membership and set comparison operator. **[5]**

**P.T.O.**

**Q3) a)** Compute closure of the following set F of FD for relational schema. [6]

$R=(A,B,C,D,E)$

$F : (A \rightarrow BC, CD \rightarrow E, B \rightarrow D, E \rightarrow A)$

List candidate key of R.

b) Define BCNF. How it differs from 3 NF? Why is it consider a stronger from 3 NF? [6]

c) Write a note on Evaluation of expression. [6]

OR

**Q4) a)** What is query processing? Explain steps involved in processing query with suitable diagram. [5]

b) Explain with suitable example Update Anomalies. [6]

c) What is normalization? What is the importance in DBMS design? Explain 1NF, 2NF, 3NF with suitable example. [7]

**Q5) a)** Check whether given scheduled is view serializable [4]

T1	T2	T3
Read(Q)		
	Write(Q)	
		Write(Q)
Write(Q)		

b) Explain the concept of transaction. Describe ACID properties for transaction. [6]

c) What is recoverable schedule? Why is recoverability of schedule desirable? Are there any circumstances under which it could be desirable to allow nonrecoverable schedule? Explain your answer. [7]

OR

- Q6) a)** Define Serializability. Give test for conflict Serializability. Check Whether following schedule is conflict serializable. [7]

T1	T2
Read(A)	
Write(A)	
	Read(A)
	Write(A)
Read(B)	
Write(B)	
	Read(B)
	Write(B)

- b) Explain deferred database modification and immediate database modification and there difference in the context of recovery. [6]
- c) Explain Timestamp based Concurrency Control [4]

- Q7) a)** Explain following term related to distributed database system. [6]

- i) Homogeneous and heterogeneous distributed database
- ii) Data replication
- iii) Data fragmentation
- iv) Transparency

- b) Explain Architecture of parallel databases. [6]
- c) Discuss the speedup and scaleup issue in parallelism with suitable diagram. [6]

OR

- Q8) a)** State which database architectures you will prefer for following application. Support your answer with brief explanation. [6]

- i) Banking System
- ii) Airline reservation System

- b) Write short note on: [12]

- i) Internet Database
- ii) SQLite Database
- iii) Cloud Database

