

Total No. of Questions : 8]

SEAT No. :

P984

[Total No. of Pages : 3

[5869]-288

S.E. (Information Technology)
DATABASE MANAGEMENT SYSTEM
(2019 Pattern) (Semester - IV)

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.
- 5) Use of Scientific calculator is permitted.

Q1) a) Consider following database: **[6]**

Student (Roll_no, Name, Address)

Subject (Sub_code, Sub_name)

Marks (Roll_no, Sub_code, marks)

Write following queries in SQL:

- i) Find average marks of each student, along with the Roll_no of student of subject code 'CE2412'.
 - ii) Find how many students have failed in the subject "DBMS".
 - iii) Construct suitable view on above schema.
- b) Explain on delete cascade command with suitable example. **[5]**
- c) What are different types of joins in SQL? Explain with suitable example. **[7]**

OR

Q2) a) Explain with suitable example SQL aggregation functions. **[6]**

b) Write the syntax for following SQL commands: **[6]**

- i) create table
 - ii) alter table
 - iii) drop table
 - iv) insert
 - v) delete
 - vi) update
- c) Write and explain SQL function and procedures with sample example. **[6]**

P.T.O.

- Q3) a)** Explain with example Materialized evaluation and pipelining [6]
b) Consider following relational table. Find nontrivial and trivial functional dependency. [5]

A	B	C
a ₁	b ₁	c ₁
a ₁	b ₁	c ₂
a ₂	b ₁	c ₁
a ₂	b ₁	c ₃

- c)** List the desirable properties of decomposition. Explain loss less join with example. [6]

OR

- Q4) a)** Consider the following Book Relation. [5]

Book (Book_id, Title, Author, Publisher, Year, Price)

Write relational algebra expression for the following.

- Display all book title with authors and price.
 - Display the titles of book having price greater than 300.
 - Display books publish in year 2000.
 - Display all books published by 'PHP' with price greater then 300.
- b)** What are the measure of query cost? [7]
c) Define query processing. What are the steps involved in query processing? [5]

- Q5) a)** What is a deadlock? Explain deadlock recovery techniques. [6]

- b)** If we are to ensure atomicity, all the sites in which a transaction T executed must agree on the final outcome of the execution T must either commit at all sites, or it must abort at all sites. Describe the Two Phase Commit Protocol used to ensure this property in detail. [8]
c) How does the granularity of data items affect the performance of concurrency control? What factors affect the selection of granularity size of data items? [4]

OR

- Q6)** a) Explain deadlock prevention and Recovery. [8]
b) Illustrate difference between conflict serializable schedule and view serializable schedual by an appropriate example. [6]
c) What are the types of errors that may cause a tansaction to fail? [4]
- Q7)** a) Explain 2-tier and 3-tier architecture with diagram for online Banking Database system. [6]
b) Explain any two parallel Database System Architecture in detail. [6]
c) Enlist the Advantages & Disadvantages of Replication [5]

OR

- Q8)** a) What are different data fragmentation techniques in distributed databases? [6]
b) Write a short note on Centralized and Distributed Database Systems.[6]
c) Explain need of partitioning techniques used in I/O parallelism. Explain techniques in detail. [5]

