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 jois in SQL? Explain with suitable example. **[7]**

OR

Q2) a) Explain with suitable example SQL aggretage 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 trivail 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 decompostion. 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.

i) Display all book title with authors and price.

ii) Display the titles of book having price greater than 300.

iii) Display books publish in year 2000.

iv) 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]**

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