Total No. of Questions : 8]

SEAT No. :

PB3648

[Total No. of Pages : 3

[6261]-56

S.E. (Information Technology)

DATABASE MANAGEMENT SYSTEMS

(2019 Pattern) (Semester - IV) (214452)

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, Q.9 or Q.10.***
2) ***Neat diagram must be drawn whenever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***
5) ***Use of Scientific Calculator is permitted.***

Q1) a) Write a note on : **[8]**

i) Database Modification using SQL

ii) Set Operation

b) Consider the following relation: **[6]**

Customer(cid,cname,caddress,city,state)

Order(oid,odate,aamount)

Customer and order are related with one to many relationship. solve the following queries.

i) List the name of customer who belong to Maharashtra state, sorted on city.

ii) What are the name of all customer who placed the order between 01/01/2010 to 31/03/2011?

iii) Define constraint on order amount such that it should be always greater than zero.

c) Explain the concept of Dynamic and Embedded SQL. **[4]**

OR

P.T.O.

Q2) a) Explain in detail with syntax Stored, procedure and Trigger 3-54 **[8]**

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

i) Create Table

ii) Alter table

iii) Drop table

iv) Insert

v) Update

vi) Delete

c) What is view? List two major problem with processing update operations expressed in terms of views. **[4]**

Q3) a) Compute the closure of the following set F of functional dependencies for relation schema R = (A, B, C, D, E). **[7]**

$A \rightarrow BC$

$CD \rightarrow E$

$B \rightarrow D$

$E \rightarrow A$

List the candidate keys for R.

b) State and explain armstrong's axioms and its properties. **[6]**

c) Explain Difference between 4NF & BCNF. **[4]**

OR

Q4) a) Describe the concept of transitive dependency. Explain how this concept is use to define 3NF. **[7]**

b) Explain with example Materialized evaluation and pipelining. **[6]**

c) Suppose that we decompose the schema R = (A, B, C, D, E) into **[4]**

(A, B, C)

(A, D, E).

Show that this decomposition is a lossless-join decomposition if the following set F of functional dependencies holds.

$A \rightarrow BC$

$CD \rightarrow E$

$B \rightarrow D$

$E \rightarrow A$

Q5) a) Explain : **[8]**

i) ACID properties

ii) Explain Timestamp Based Concurrency Control

b) What is the need of Serializability? **[6]**

c) Check whether given schedule is view serializable? **[4]**

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

OR

Q6) a) What is Log Based Recovery? Explain Deferred Database Modification and Immediate Database Modification. **[12]**

b) Write a note on "Shadow Paging". **[6]**

Q7) a) Explain the following : **[12]**

Internet Databases

Mobile Databases

Cloud Databases

SQLite Databases

b) Explain XQuery FLWOR Expressions. **[5]**

OR

Q8) a) With a proper diagram, explain the architecture of Distributed Databases. **[9]**

b) With a suitable diagram, explain Centralized and Client-Server Architectures. **[8]**