Total No. of Questions : 8]

SEAT No. :

PD4101

[Total No. of Pages : 2

[6402]-61
S.E. (Information Technology)
DATABASE MANAGEMENT SYSTEM
(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.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) What is view in SQL and how it is define? Discuss the problem that may arise when one attempt to update views. How views are typically updated? **[8]**

b) Write a note on Database modification using SQL. **[6]**

c) Differentiate between: WHERE and HAVING clauses in SQL. **[4]**

OR

Q2) a) Describe the circumstances in which you would choose to use embedded SQL rather than using SQL alone or using only a general purpose programming language. Compare dynamic and embedded SQL with suitable example. **[8]**

b) With suitable example explain SQL aggregate functions. **[6]**

c) Explain the concept of trigger with suitable example. **[4]**

Q3) a) Define BCNF? How does it differ from 3NF? Why is it consider a stronger form of 3NF? **[7]**

b) Relation R (A,B,C,D,E) having following set of FD. Convert it to 3NF and also check whether it is in BCNF or not. **[6]**

$A \rightarrow BD,\ B \rightarrow C,\ D \rightarrow E$

c) Write a note on Measures of Query cost. **[4]**

OR

Q4) a) Given a relation schema R = (A,B,C,D,E) and function dependency as $A \rightarrow C$, $C \rightarrow D$, $CE \rightarrow A$, $B \rightarrow C$, $DE \rightarrow C$. Relation R is decomposed into r1= AD, r2=AB, r3 = BE, r4 = CDE, r5=AE. Decide this decomposition is lossy or lossless ? Justify. **[6]**

b) Show that with suitable example: if a relation schema is in BCNF, then it is also in 3NF. **[6]**

c) Write a note on evaluation of expression. **[5]**

P.T.O.

Q5) a) Give test for conflict serializability. Check whether following schedule is conflict serializable. **[6]**

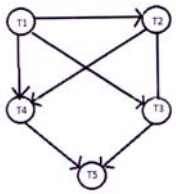
T1	T2
Read(A)	
Write(A)	
	Read(A)
	Write(A)
Read(B)	
Write(B)	
	Read(B)
	Write(B)

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

c) Discuss the problem with concurrency. Describe any two method based on locks to control concurrency. **[6]**

OR

Q6) a) Differentiate between conflict and view serializability. Given precedence graph, is the corresponding schedule conflict serializable. **[6]**



b) When do deadlock happen, how to prevent them and how to recover if deadlock takes place? **[6]**

c) Explain deferred database modification and immediate database modification and their differences in the context of recovery. **[6]**

Q7) a) State which database system architecture you will prefer for following application. **[6]**

i) Railway reservation system
ii) Search Engine
iii) College admission system

b) Draw and explain architecture of parallel Databases. **[6]**

c) What are the characteristics of NoSQL cloud databases. **[5]**

OR

Q8) a) What is fragment of a relation? What are the main type of fragmentation? Why is fragmentation a useful context in distributed database design. **[6]**

b) Explain centralize and client server database architecture. **[6]**

c) What are the requirement of mobile databases? List existing mobile databases. **[5]**

ⓘⓘⓘⓘ