Total No. of Questions :12]

SEAT No. :

P2961

[Total No. of Pages :4

[4958] - 201

T.E. (IT)

DETABASE MANAGEMENT SYSTEMS

(2008 Course) (Semester - I)

Time : 3 Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answer to the two sections should be written in separate answer books.***
2) ***Answer any three questions from each section.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of Electronic pocket Calculator is allowed.***
6) ***Assume Suitable data if necessary.***

SECTION - I

Q1) a) Explain following Data Models: Hierarchicla, Network, ER and Object Relational model. **[8]**

b) Explain with appropriate example why it is said that file systems lack of data independence. **[4]**

c) What is a relation? What are the properties of a relation? Explain with example. **[6]**

OR

Q2) a) Explain good database design properties. With suitable example explain the consequences of bad designing. **[6]**

b) What is the need of mapping cardinality? For a binary relationship set what are the possible mapping cardinalities? Explain with diagrams. **[6]**

c) Define following terms: **[6]**

i) Primary key

ii) Foreign key

iii) Weak entity set

iv) Strong entity set

P.T.O.

Q3) a) Write short notes on: (any 2) **[8]**

i) Stored procedures

ii) Triggers

iii) Dynamic & embedded SQL

b) Consider the following database: **[8]**

Doctor (Doctor - no, Doctor - name, Address, City)

Hospital (Hospital - no, Name, street, City)

Doc - Hosp (Doctor - no, Hospital - no, Date)

Construct the following queries in SQL.

i) Find out all doctors who have visited to Hospital in same city in which they live.

ii) Find out to which Hospital 'Dr. Joshi' visited.

iii) Count no. of doctor visited to 'Shree clinic? On 25 March 2016.

OR

Q4) a) Explain aggregate functions in SQL with suitable example. **[8]**

b) What is a cursor? What are different types of cursors? Explain with suitable example the need of implicit & explicit cursors. **[8]**

Q5) a) When two sets of functional dependencies are said to be equivalent? **[6]**

Given:

$$F = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$$

$$G = \{A \rightarrow CD, E \rightarrow AH\}$$

Check if F and G are equivalent?

b) Write a short note on: **[10]**

i) Lossless decomposition.

ii) BCNF.

OR

Q6) a) What is Normalization? Explain difference between 2NF & 3NF with suitable example. **[8]**

b) What are Armstrong's axioms? Give the rules for axioms. Prove the pseudo transitivity. **[8]**

SECTION - II

Q7) a) Describe in brief dynamic hashing/ extensible hashing. **[6]**

b) Describe structure of B^+ tree. How does it differ from B. tree. How to implement dynamic multilevel indexes? **[6]**

c) Explain merge - join algorithm. **[6]**

OR

Q8) a) Define Indexing. Explain sparse, dense & clustered indexing with diagram. **[6]**

b) Explain the factors for evaluating the indexing techniques. **[6]**

c) Explain the techniques for improving speed of access of blocks. **[6]**

Q9) a) Explain how deadlock detection and prevention is done? **[8]**

b) Explain recoverable Q cascadeless schedules. **[8]**

OR

Q10)a) Check whether given schedule is view serializable? **[4]**

T_1	T_2	T_3
Read (Q)		
Write (Q)	Write (Q)	Write (Q)

b) What is extention in rigorous two phase locking protocal as compared to two phase locking protocol. **[6]**

c) Explain shadow paging with example. **[6]**

Q11)a) Define & explain distributed databases with its advantages & disadvantages. **[6]**

b) What is data mining? Explain the need of data mining. **[6]**

c) Explain pointer swizzling technique. **[4]**

OR

Q12)a) Explain association rules with support & confidence measure. **[8]**

b) Explain column oriented storage with its merits & demerits over the Row - oriented storage. **[8]**