Total No. of Questions :12]

SEAT No. :

P2457

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T.E .(I.T.)

DATABASE MANAGEMENT SYSTEMS

(2008 Course) (Semester - I)

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

Instructions to the candidates:

1) ***Answers 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 calculator is allowed.***
6) ***Assume suitable data, if necessary.***

SECTION-I

Q1) a) How following problems are handled with DBMS. **[8]**

i) Data Isolation.

ii) Data Redundancy and Inconsistency.

iii) Data Integrity.

b) Explain various Data Models used in DBMS. **[10]**

OR

Q2) a) Explain the structure of DBMS. **[10]**

b) What do you mean by Key? State & explain Codd's rules. **[8]**

Q3) a) What do you mean by Cursor? Explain the types of cursor with example. **[8]**

b) Explain various set operation in SQL with example. **[8]**

OR

P.T.O.

Q4) a) Explain Natural join & division operation in relational algebra with example. **[8]**

b) Explain Stored Procedures & Triggers. **[8]**

Q5) a) What is Normalization? Explain 1NF & 2NF with example. **[8]**

b) What do you mean by decomposition? Explain lossless decomposition & dependency preserving decomposition with suitable example. **[8]**

OR

Q6) a) Specify Armstrong's axioms. Use Armstrong's axioms to prove the soundness of pseudo transitivity rule. **[8]**

b) Describe the concept of transitive dependency and explain how this concept is used to define 3NF. **[8]**

SECTION-II

Q7) a) Define Hashing. Explain the difference between Static & Dynamic Hasing. **[8]**

b) Explain detail use of B Tree as an indexing technique. Compare B Tree and B+ Tree. **[10]**

OR

Q8) a) Define Query processing. Explain Merge join algorithm in Query processing. **[10]**

b) Explain following: **[8]**

i) Dense index.

ii) Sparse index.

iii) Clustered index.

Q9) a) State and Explain Thomas Write rule. **[8]**

b) Explain Shadow Paging mechanism with diagram along with the benefits. **[8]**

OR

Q10)a) Explain the concept of 'transaction'. Describe ACID properties for transaction. **[8]**

b) Show that two phase locking protocol ensures conflict serializability. **[8]**

Q11)a) Write short note on: **[8]**

i) Data Warehouse Manager.

ii) Pointer Swizzling Techniques.

b) What do you mean by Distributed Database system? Explain its working with proper diagram with advantages. **[8]**

OR

Q12)a) Explain 2 Tier & 3 Tier architecture of Databases. **[8]**

b) Explain the need of Backup and Replication. **[8]**