Total No. of Questions : 10]

SEAT No. :

P1353

[Total No. of Pages : 3

[4858] - 1101

T.E. (I.T.) (End Semester)

DATA BASE MANAGEMENT SYSTEMS

(2012 Pattern) (Semester - I)

Time : 2½ Hour] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Discuss the entity integrity & referential integrity constraints. **[4]**

b) For a Library Management System following information is maintained. **[6]**

Books (Accession_no, Title, Author, Price, Booktype, publisher)

Borrower(Membership_no, Name, Address, Category, max_no_of _books_issued, Accession_no)

Draw E-R Diagram for the above taking into consideration following constraints and by making use of atleast one Extended ER feature :

i) A book may have more than one author.

ii) There may be more than one copy of a book.

iii) Borrower can be staff or a student. Depending on this category max number of books that can be issued will vary. [i.e. student can ask for max 3 books whereas staff can ask for 10 books]

OR

Q2) a) What do you mean by correlated subquery? How it is different from uncorrelated subquery. **[4]**

b) How to use oracle sequences? Explain with proper example. **[6]**

P.T.O.

Q3) a) For the Given transactions T1 & T2 check if the schedule is conflict serializable. **[5]**

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

Justify your Answer.

b) What are the costs to be considered when a transaction has to be rolled back when recovering from deadlock. **[5]**

OR

Q4) a) Explain Join in SQL. Give proper example for Recursive Join. **[6]**

b) How multiple granularity locking can improve two phase locking. **[4]**

Q5) a) Enlist the technical advantages when going from one tier to two tier architectures also specify the disadvantages with which 2 tier architectures suffer from. **[8]**

b) What are the key elements of parallel processing. **[6]**

c) Enlist the Advantages & Disadvantages of Replication. **[4]**

OR

Q6) a) If you were designing a web based system to make airline reservations & sell airline tickets, which DBMS architecture would you choose from Centralized & client server Architecture? Why? Why would the other architectures not be a good choice **[8]**

b) Draw & Explain architecture of parallel databases. **[8]**

c) Enlist various architectural models for parallel databases. **[2]**

Q7) a) How data validation is done in XML. **[4]**

b) What are different data types of JSON? What is difference between XML & JSON. **[6]**

c) Discuss Hbase Data Model. **[6]**

OR

Q8) a) Give the DTD for an XML representation of the following nested relational schema. **[7]**

Emp = (ename, ChildrenSet set of (Children), SkillSet Set of (Skills))

Children = (name, Birthday)

Birthday = (day, month, year)

Skills = (type, Examset setof (Exams))

Exam = (year, city)

Use the DTD and write the following queries in Xqueries format.

Find the names of all employees who have a child who has a birthday in March.

b) What is HDFS? Explain in detail. **[5]**

c) When to use Hbase & When not to use it. **[4]**

Q9) a) What are the characteristics of NoSQL cloud databases? **[8]**

b) Draw & explain the machine learning system model. What factors affect the performance of the system? **[8]**

OR

Q10) a) What are the design criteria for mobile databases? List existing mobile databases. **[8]**

b) XML can be used to create new Internet language. Justify. Enlist features & advantages of XML. **[8]**

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