[4658] – 591

Seat No.	

T.E. (Computer) (Semester – I) Examination, 2014
DATABASE MANAGEMENT SYSTEMS APPLICATIONS
(2012 Course)

Time : 3 Hours Max. Marks : 70

Instructions : *1) Answer Q. **1** or Q. **2**, Q. **3** or Q. **4**, Q. **5** or **6**, Q. **7** or Q. **8**, Q. **9** or Q. **10**.*
*2) **Neat** diagrams must be drawn **wherever** necessary.*
*3) Figures to the **right** side indicate **full** marks.*
*4) Assume suitable data, if **necessary.***

1. a) Design E-R model for Online Book Shop Database System **5**
   i) List the entity sets and their primary keys
   ii) Extend the E-R diagram, using Specialization.
   b) Define normalization. Explain three normal forms with suitable example. **5**

OR

2. a) Explain MongoDB CRUD operations with suitable example. **5**
   b) Consider following relational tables **5**

   instructor (ID, name, dept_name)

   student (ID, dept_name, tot_cred)

   takes (ID, course_id, sec_id, semester, year)

   course (course_id, title, dept_name, credits)

   Dept (Dept_id, dept_name)

   Solve following quries using SQL

   i) Design above relation tables using SQL DDL statements, primary key and foreign key
   ii) Find the names and average salaries of all departments whose average salary is greater than 42000.

3. a) Explain distinct between the terms serial schedule and serializable schedule with suitable example. **5**
   b) Explain aggregation using MongoDB with suitable example. **5**

OR

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4. Write a short note on **(any two)** : **10**
   i) Croude sourcing
   ii) Two phase locking protocol
   iii) Query optimization in NoSQL.

5. a) Explain 2-tier and 3-tier architecture with diagram for online Banking Database system. **5**
   b) Explain any two parallel Database System Architecture in detail. **5**
   c) If we are to ensure atomicity, all the sites in which a transaction T executed must agree on the final outcome of the execution T must either commit at all sites, or it must abort at all sites. Describe the Two Phase Commit Protocol used to ensure this property in detail. **7**

OR

6. a) Compare homogeneous and heterogeneous distributed databases. **5**
   b) Explain Cassandra database in detail. **5**
   c) Explain database connectivity using MongoDB with suitable example. **7**

7. a) What is JSON ? Explain JSON schema with example. **5**
   b) What is HBase ? Explain data models in detail. **5**
   c) Consider bibliography database system for different database entities such as book, book year, author, editor, title, publisher, price etc. **7**
   Design XML DTD with Constraints for Bibliography Database System.

OR

8 a) Explain XPath and Xquery with suitable example. **5**
   b) Explain HIVE database in detail. **5**
   c) Explain different components of Hadoop in details. **7**

9. a) Explain BIS components in detail. **5**
   b) Compare operational system and data warehouse. **5**
   c) Define clustering. Explain any clustering algorithm with suitable example. **6**

OR

10. a) Explain Data Mining classification task with suitable example. **5**
   b) Define Machine Learning. Explain supervised and unsupervised learning with suitable example. **5**
   c) Explain Data Warehouse Architecture in detail. **6**

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