P2608

[5153]-584

T.E. (Computer Engg.)
DATABASE MANAGEMENT SYSTEM APPLICATIONS
(2012 Pattern) (Semester - I) (310244)

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, Q.9 or Q.10.

2)   Neat diagrams must be drawn wherever necessary.

3)   Figures to the right indicate full marks.

4)   Assume Suitable data, if necessary.

Q1) a)   Construct an E-R diagram for a hospital with a set of patients and a set of medical doctors. associate with each patient a log of the various tests and examinations conducted. Properly identify primary keys and different types of attributes.   **[5]**

b)   Explain how the use of Database Management System is better than File Processing System.   **[5]**

OR

Q2) a)   Consider following structure for MongoDB collection and write a query for following requirements in MongoDB (any 2)   **[5]**

Student (Roll_No, Class, Marks_obtained).

i)   Create above collections and insert minimum 2 documents into collection

ii)   Find all students who belongs to Class SE_Comp and Obtained more than 60 Marks. Display only Roll_no.

iii)   Use Save Method to insert document.

b)   Explain aggregation in MongoDB using suitable example.   **[5]**

Q3) a)   Consider relational schema   **[5]**

Loan (l_no, branch_name, amount)

P.T.O.

Borrower (c_name, l_no)

Account (acc_no, br_name, balance)

Write SQL queries for following requirements: (Any two)

i) List all customers in alphabetical order who have a loan at 'Pune' branch

ii) Calculate total loan amount given by bank.

iii) Find average account balance at 'Mumbai' branch.

b) What is serializability? Explain view serializability in brief. **[5]**

OR

Q4) a) Explain CAP theorem in NOSQL Databases. **[5]**

b) Explain ACID properties of relational database with suitable example. **[5]**

Q5) a) Explain Cassandra database system. **[8]**

b) There are different reasons of building distributed database system, including sharing of data, autonomy and availability. Explain these advantages of distributed database systems in detail. **[8]**

OR

Q6) a) Explain different steps required for JAVA to MongoDB database connection using JDBC. **[8]**

b) List and explain different factors affecting the speed up and scaleup of parallel systems. **[8]**

Q7) a) Consider the requirements of bank having following fields to store. **[7]**

account (account-number, branch-name, balance)

customer (customer-name, customer-street, customer-city)

depositor (account-number, customer-name)

Write a XML DTD for above elements.

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

i) Building blocks of HADOOP

ii) R programming

OR

Q8) a) Explain the different methods for XML querying like Xpath & Xquery. **[7]**

b) Explain HBASE and HIVE **[5]**

c) Explain Mapreduce in HADOOP. **[5]**

Q9) a) Explain with neat diagram different components of data warehouse. **[5]**

b) What is data Mining classification? How Data Mining Classification is used to extract knowledge from database? **[7]**

c) Explain the different types of machine learning algorithms like supervised & unsupervised learning algorithms. **[5]**

OR

Q10) a) Explain in brief different BIS components. **[5]**

b) In organizations, operational database systems are available to handle the daily transactions then why separately Data warehouse systems are installed? **[7]**

c) Write short note on Data-mining regression analysis. **[5]**

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