

Total No. of Questions : 10]

SEAT No. :

P2608**[5153]-584**

[Total No. of Pages : 3

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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