May 2017

Total No. of Questions : 10]

SEAT No. :

P2608

[Total No. of Pages : 3

[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)

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

P.T.O.

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]