

Total No. of Questions : 10]

SEAT No. :

P3157

[Total No. of Pages : 3

[4858] - 1081

T.E. (Computer Engineering) (Semester - I)
Database Management Systems Applications
(2012 Pattern) (End Semester)

Time : 3 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 side indicate full marks.*
- 4) *Assume suitable data if necessary.*

Q1) a) Construct an E-R diagram for a Banking Database System. Consider various entities such as Account, Customer, Branch, Loan, Deposit, Borrower etc. Design Specialization and Generalization EER features. **[5]**

b) List significant differences between a file-processing system and a DBMS. **[5]**

OR

Q2) a) Define Normalization. Explain 2ND Normal Form with suitable example. **[5]**

b) Consider Following Relational Tables: **[5]**

person(pname, street, city)

works_for(pname, cname, salary)

company(cname, city)

manages(pname, mname)

Solve following queries using SQL

- i) Find the street and city of all employees who work for the Appolo, live in Pune, and earn more than Rs. 50,000.
- ii) Create a view consisting of the manager name and the average salary of all employees who work for that manager.

P.T.O.

- Q3)** a) Explain the need for concurrency control in transaction management. [5]
- b) Design following queries using MongoDB [5]
- i) Create a collection called 'games'.
 - ii) Add 5 games to the database. Give each document the following properties: {name, gametype, rating (out of 100)}.
 - iii) Write a query that returns all the games.
 - iv) Write a query that returns the 3 highest rated games.
 - v) Update your two favorite games to add two achievements called 'Game Master' and 'Speed Demon'.

OR

- Q4)** Write a short note on (Any Two): [10]
- a) Map Reduce Function.
 - b) Log based Recovery.
 - c) CAP and BASE theorem.

- Q5)** a) Explain Client Server Architecture with suitable database application. [5]
- b) Define Distributed Database. Explain advantages and disadvantages of Distributed Databases. [5]
- c) Explain Two Phase Commit Protocol in Distributed Databases. How 3 PC is different than 2PC. [7]

OR

- Q6)** a) Explain Transaction Servers and Data Servers. [5]
- b) Describe Sharding in MongoDB. [5]
- c) Explain Shared Nothing and Shared Memory Parallel Database system architectures. [7]

- Q7)** a) What is JSON? Explain JSON schema with example. [5]
b) What is Hadoop? Explain Components of Hadoop. [5]
c) Explain DTD and XML schemas with suitable example. [7]

OR

- Q8)** a) Explain is HIVE Database and HIVE Query Language in detail. [5]
b) Write a short note on R Programming. [5]
c) Explain Xquery and FLWOR Expressions with suitable example. [7]

- Q9)** a) What is BIS? Explain Components of BIS. [5]
b) Compare OLTP vs OLAP. [5]
c) Define Data Mining. Explain various Data Mining tasks with suitable example. [6]

OR

- Q10)** a) Explain Recommendation System with suitable example. [5]
b) Explain Regression with example. [5]
c) Explain k-means clustering algorithm with suitable example. [6]



