

Total No. of Questions : 10]

SEAT No. :

P2470

[Total No. of Pages : 2

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**T.E. (Information Technology)**  
**DATABASE MANAGEMENT SYSTEMS**  
**(2012 Pattern) (Semester - I)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates :*

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of Calculator is allowed.
- 5) Assume suitable data, if necessary

- Q1)** a) What are the three data anomalies that are likely to occur as a result of data redundancy? Can data redundancy be completely eliminated in database approach? [6]
- b) Explain aggregation and specialization concept with the help of diagrams. [4]

OR

- Q2)** a) What is view? What are the advantages of View? Write and Explain create view syntax. [6]
- b) Explain Stored Procedure with suitable example. [4]
- Q3)** a) Explain Boyce-Codd Normal Form with example and why 4NF is more desirable than BCNF. [6]
- b) Consider the following employee database [4]
- employee (employee-name, street, city)  
works (employee-name, company-name, salary)  
company (company-name, city)  
manages (employee-name, manager-name)  
Where the primary keys are underlined.  
Give an expression in SQL for each of the following queries.(Any Two)
- i) Find the names of all employees who work for First Bank Corporation.
  - ii) Find the names and cities of residence of all employees who work for First Bank Corporation.
  - iii) Find all employees in the database who live in the same cities and on the same streets as do their managers.

OR

**P.T.O.**

- Q4)** a) Explain following terms with the help of example. [6]  
i) Recoverable schedule.  
ii) Cascadeless schedule  
b) Explain ACID properties of transaction. [4]

- Q5)** a) Draw and Explain architectures of parallel databases? List Advantages and disadvantages of parallel database architectures? [8]  
b) Draw and explain centralized database management system. [6]  
c) Explain Internet database systems. [4]

OR

- Q6)** a) Explain Data fragmentation and data replication with respect to distributed database systems. [8]  
b) Compare the two-tier and three-tier client server architectures. [6]  
c) Explain various system parameters of parallel databases [4]

- Q7)** a) Define the terms encoding and decoding with respect to JSON. [4]  
b) What is XML schema? Explain difference between XML schema and XML DTD. [6]  
c) List and discuss the important features of Hadoop. [6]

OR

- Q8)** a) List and discuss the elements of Big Data. [4]  
b) What are different data types of JSON? List any four differences between XML and JSON? [6]  
c) What is the role of Namenode and Datanodes in an HDFS cluster? Draw and explain. [6]

- Q9)** a) What is data mining? Describe the steps involved in data mining. [8]  
b) What is On-Line Analytical Processing (OLAP)? What are benefits of OLAP? How is data mining different from OLAP? [8]

OR

- Q10)** a) Draw and explain various components of data warehouse. [8]  
b) Write short note on: [8]  
i) SQLite Databases  
ii) Mobile Databases

