Total No. of Questions : 10] **SEAT No. :**

P2470 **[Total No. of Pages : 2**

[5253] - 193
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