



[4658] – 151

<b>Seat No.</b>	
---------------------	--

**T.E. (Computer/Info. Tech.) (Semester – I) Examination, 2014**  
**DATABASE MANAGEMENT SYSTEMS**  
**(2008 Pattern)**

Time : 3 Hours

Max. Marks : 100

- Instructions :** 1) Answers to the **two** Sections should be written in **separate** answer books.  
 2) Answer **any three** questions from **each** Section.  
 3) **Neat** diagrams must be drawn **wherever** necessary.  
 4) Figures to the **right** side indicate **full** marks.  
 5) Assume **suitable** data **if necessary**.

## SECTION – I

1. a) State advantages of a DBMS over file-processing systems. 8  
 b) Explain Data abstraction with different levels of abstractions. 6  
 c) Explain Data Independence. 4  

OR
2. a) Explain Structure of D.B.M.S. 10  
 b) Explain following Data Models : Hierarchical, Network, ER and Object Relational Model. 8
3. a) Explain Aggregate Functions in SQL with suitable example. 8  
 b) Explain Natural join Operation and division operation in relational algebra with example. 8  

OR
4. a) Consider the following database. 8  
 Doctor (Doctor\_no, Doctor\_name, Address, City).  
 Hospital (Hospital\_no, Name, Street, City).  
 Doc\_Hosp (Doctor\_no, Hospital\_no, Date).  
 Construct the following Queries in SQL.  
 1) Find out all Doctors who have visited to Hospital in same city in which they live.  
 2) Find to which Hospital “Dr. Joshi” has visited.  
 3) Count no. of Doctors visited to “Shree Clinic” on 1<sup>st</sup> March 2014.  
 b) Explain views with suitable example. 4  
 c) Explain the need for embedded SQL. List various embedded commands. 4

P.T.O.

[4658] – 151



5. a) What is normalization ? Explain First Normal Form and Second Normal Form with example. **8**  
 b) Write short note on multivalued dependencies and 4NF. **8**  
 OR
6. a) What is decomposition ? Explain lossless decomposition and dependency preserving decomposition with suitable example. **8**  
 b) What are the different Anomalies in databases ? **6**  
 c) What is Canonical Form ? **2**
- SECTION – II
7. a) What are the advantages and disadvantages of hash indices relative to B tree indices ? How the type of index influences the query processing ? **8**  
 b) Explain estimation of cost of query. **4**  
 c) What is role of relational algebra in query processing ? **4**  
 OR
8. a) What are the steps involved in query processing ? Explain each in brief with diagram. **8**  
 b) What is ordered indices ? Explain the types of Ordered indices with suitable example. **8**
9. a) Write short note on : **10**  
 1) The two phase locking protocol  
 2) Time stamp based protocol  
 b) Explain Shadow Paging with diagram. **6**  
 c) What are two types of errors that may cause a transaction to fail ? **2**  
 OR
10. a) Explain deadlock prevention and Recovery. **8**  
 b) Explain recoverable and cascade less schedules. **8**  
 c) What is extension in rigorous two phase locking protocol as compared to two phase locking protocol. **2**
11. a) Draw the diagram showing different components of Data warehouse and explain. **7**  
 b) Write short note on :  
 1) Persistent Programming Languages  
 2) Pointer Swizzling techniques and  
 3) OODBMS. **9**  
 OR
12. a) Explain 2 Tier and 3 Tier Architecture of databases. **8**  
 b) What are different data fragmentation techniques in distributed databases ? **4**  
 c) What is data mining ? What is need of data mining ? **4**