(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 110402	**Roll No.**

B.TECH.

Theory Examination (Semester-IV) 2015-16

DATABASE MANAGEMENT SYSTEM

Time : 3 Hours   *Max. Marks : 100*

Section-A

1.   Attempt all parts of this question .Each question carry 2 marks. $(2\times10=20)$

(a)   Define multi-version scheme.

(b)   Give example of a simple, composite, single-valued and multi-valued attributes of an entity.

(c)   State and compare 3NF and BCNF.

(d)   Describe data redundancy.

(e)   Discuss the advantage of two phase locking protocol.

(f)   Why are entity integrity and referential integrity important in a database?

(g) Explain system over traditional file processing systems.

(h) What do you mean by the terms Generalization and Specialization ?

(i) Write Armstrong's axioms ?

(j) What is data independence ?

Section-B

2. **Attempt FIVE parts of this question. Each question carry 10 marks.** [10×5=50]

(a) What is multivalued dependency ? Explain the problems associated with multivalued dependency. How can they be removed?

(b) Describe the important types of recovery techniques. Explain their advantages and disadvantages.

(c) Explain lossless and lossy decomposition. Write steps to find whether decomposition is lossless or lossy using binary method.

(d) Construct an E-R diagram for your Institute with a set of teachers and set of students. Teachers offer various subjects to different classes.

(e) What are schedules? What are differences between conflict serializability and view serializability? Explain with suitable example. What are cascadeless and recoverable schedules ?

(f) How can we recover from Transaction Failures? Give few techniques of it.

(g) What do you understand by attributes and domain? Explain various types of attributes used in conceptual data model.

(h) Write short note on :

    (i) Fragmentation

    (ii) Shadow Paging

Section-C

Attempt TWO parts of this question .Each question carry 15 marks. (15×2=30)

3. EMPLOYE (EID, EmployeeName, Street, City, Deptt, CompanyName)

    COMPANY (CompanyName, City)

    WORKS (EmployeeName, CompanyName, Salary)

    MANAGES (EmployeeName, ManagerName)

Write SQL queries for the following :

(i) Find out the names of all employees that have 'A' anywhere in their name and are in department 'IT'.

(ii) List the names of departments in ascending order and their employees in descending order.

(iii) Find the names, city, deptt of all employees who work for 'TCS'.

(iv) Find the name of employee who earns salary more than 30000.

(v) List all manager names.

4. Consider the relation r(X, Y, Z, W, Q) the set

F = {X→Z, Y→Z, Z→W, WQ→Z, ZQ→X} and the decomposition of r into relations R1(X,W), R2(X,Y), R3(Y,Q), R4(Z,W,Q) and R5(X,Q). Check whether the decomposition are lossy or lossless.

5. Consider the universal relation R = {A,B,C,D,E,F,G,H,I,J} and the set of functional dependencies F = {AB →C, A →D, B →F, F →GH, D→IJ}.What is the key for R ? Normalize the relation R upto 3NF, justify your answer.