

- c) What is database integrity? Explain integrity constraints.
- d) What is distributed database system? How is it differ from the centralized database system?

OR

Give basic concepts of object-oriented database system and design.

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Roll No .....

**IT - 403**

**B.E. IV Semester**

Examination, June 2015

**Data Base Management System**

*Time : Three Hours*

*Maximum Marks : 70*

- Note:* i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.
- ii) All parts of each questions are to be attempted at one place.
  - iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.
  - iv) Except numericals, Derivation, Design and Drawing etc.

### UNIT - I

1.
  - a) What are the functions of a DBA?
  - b) List four significant differences between a file processing system and a DBMS.
  - c) Define the two levels of data independence.
  - d) Draw an E-R diagram corresponding to customers and loans.

OR

What are the different data models present? Explain in detail.

**UNIT - II**

2. a) What are the four broad categories of constraints?
- b) Discuss the basic concepts of Network data model.
- c) Explain Relational schema, intension and extension.
- d) What are the different types of integrity constraints? Explain by giving suitable example.

OR

Explain various types of keys. With example.

**UNIT - III**

3. a) List the SQL statements used for transaction control.
- b) Write short note on relational calculus.
- c) Differentiate between SQL and QBE?
- d) Consider the relational database given below :  
 lives (person\_name, street, city)  
 works (person\_name, company\_name, salary)  
 located in (company\_name, city)  
 manager (person\_name, manager\_name)  
 Give an expression in SQL for each of the queries below-  
 i) Find the company with the smallest payroll.  
 ii) Find the company with the most employees.  
 iii) Give all managers a 10% raise.

OR

What is union compatibility? What are the relational algebra operators that require the relations on which they are applied be union compatible?

**UNIT - IV**

4. a) What do you mean by normalization?
- b) Consider the following relation :  
 $R(A, B, C, D, E)$   
 The primary key of the relation is AB. The following functional dependencies hold :  
 $A \rightarrow C$   
 $B \rightarrow D$   
 $AB \rightarrow E$   
 Is the above relation in second normal form?  
 c) Give an example of a relation schema R and a set of dependencies such that R is in BCNF, but not in 4 NF.  
 d) Give a set of functional dependencies for the relation schema R(A, B, C, D, E) with primary key AB under which R is in 2NF but not in 3NF.

OR

Describe about the multi-valued Dependencies and fourth normal form with suitable example.

**UNIT - V**

5. a) List the two commonly used concurrency control techniques?
- b) What do you mean by a transaction?