(Please write your Exam. Roll No.) Exam. Roll No. 02114202010

END TERM EXAMINATION

SECOND SEMESTER [BCA], MAY – 2011

Paper Code : BCA 110	*Subject : Database Management System*
Paper Id : 20110	

Time : 3 Hours *Maximum Marks : 75*

Note : Attempt All questions as per internal choices given in each question.

Q. 1. Attempt **All** parts of the following :

(a) Define redundancy. How does DBMS help to avoid it? (3)

(b) Define Integrity of data. How is it obtained in DBMS? (3)

(c) Why should a DBMS satisfy the data independence property? (3)

(d) Differentiate between specialization and generalization. (3)

(e) Discuss the multi-valued attributes in functional dependency. (3)

(f) Why do we require data normalization? (3)

(g) Define the DDL, DML and query languages being used in DBMS. (3)

(h) Define a DBMS transaction. Write the procedure to complete any transaction. (4)

Q. 2. Attempt any **One** part of the following :

(a) (i) Explain the object based E-R modeling, using properties of objects. (4)

(ii) Write the differences between a strong entity and weak entity. (2.5)

(iii) Construct an E-R diagram for a mobile service provider whose customers own one or more mobiles. Each mobile has associated with it one or more number of services like chat, TV, Internet etc. (6)

(b) (i) Explain the DBMS architecture in detail. (3)

(ii) How does a weak entity can be converted to strong entity? Why do we have weak entity at all in a data base if they can be converted to the strong entity? (4)

(iii) Explain the roles and structural constraints in ER modeling. (5.5)

Q. 3. Attempt any **One** part of the following :

(a) (i) Discuss the various issues related to EER to relational language modeling. (6)

(ii) Discuss the various join operations in a relational database. (2.5)

(iii) Explain the various kinds of keys in a relational database. (4)

(b) Consider the database given below, where Primary keys are underlined. Give an expression in relation algebra to express each of the following queries. (12.5)

(i) Find the names of all employees who live in the same city and on the same street as do a customer having largest deposit in account.

(ii) Find the city of all employees where a team member working under a manager has the same name as of manager.

(iii) Find the names of all employees who earn more than every employee of Axis bank.

(iv) Modify the database so that B. Kumar now lives in Delhi.

(v) List the city of manager having highest annual salary.

employee (person-name, street, city)
works (person-name, company-name, salary)
company (company-name, city)
managers (person-name, manager-name)

Q. 4. Attempt any **One** part of the following :

(a) (i) Prove that decomposition of scheme R=(A,B,C,D,E) into (A,B,C) and (C,D,E) is not a lossless decomposition. **(5)**

(ii) Discuss the methods of database recovery. **(4.5)**

(iii) Explain the procedure of database authorization. **(3)**

(b) (i) Discuss the ways for concurrency control in a database system. **(6)**

(ii) What is normalization? What are various normalization forms? List their prime attributes. **(6.5)**

Q. 5. Attempt any **One** part of the following :

(a) (i) Why B+ trees are preferred for file organization? How are they different from the indexed sequential accesses? **(5)**

(ii) Define a collision. Explain various methods for collision resolution. **(4.5)**

(iii) Explain record blocking with example. **(3)**