

Seat No. : _____

ZK-121

May-2014

B.C.A., Sem.-II

Database Management System – I : CC-110

Time : 3 Hours]

[Max. Marks : 70

- Instructions :**
- (1) Attempt **all** questions.
 - (2) Make suitable assumptions whenever necessary.
 - (3) Figures to the right indicate full marks.

1. (A) Answer the following questions : **8**

- (a) List all database functions and explain any 3 in detail.
- (b) Describe the basic features of the relational model and discuss their importance to the end user.

OR

Answer the following questions : **8**

- (a) Discuss Network model.
- (b) List and describe different types of database.

(B) Answer briefly : **6**

- (a) Differentiate between data and information.
- (b) Explain Metadata.

OR

Answer briefly : **6**

- (a) State the disadvantages of database management system.
- (b) List 5 major parts of database system environment and explain any 2 in detail.

2. (A) Answer the following questions : **8**

- (a) Explain SELECT, PRODUCT, PROJECT and JOIN relational set operators.
- (b) Define table and explain its characteristics.

OR

Answer the following questions : **8**

- (a) Discuss relationships within the relational database.
- (b) Define key and explain the concept of determination.

- (B) Answer briefly : 6
- (a) State the difference between database and table.
 - (b) Explain data dictionary and system catalog.

OR

- Answer briefly : 6
- (a) Explain referential and entity integrity by giving example.
 - (b) Differentiate between logical and physical view of data.

3. (A) Answer the following questions : 8
- (a) Given the following business rules, create the appropriate Crow's Foot ERD.
 - (i) An organization operates many departments.
 - (ii) Each department employs one or more employs.
 - (iii) Each of the employees might or might not have one or more dependents.
 - (iv) Each employee might or might not have an employment history.
 - (b) Discuss relationship strength in detail.

OR

- Answer the following questions : 8
- (a) Write a short note on relationship degree.
 - (b) What are multivalued attributes, and how they can be handled within the database design ?

- (B) Answer briefly : 6
- (a) What 2 conditions must be met before an entity can be classified as a weak entity ?
 - (b) Define and explain composite entities.

OR

- Answer briefly : 6
- (a) How is a composite entity represented in an ERD, and what is its function ? Illustrate the Crow's Foot notation.
 - (b) What is a recursive relationship ? Give an example.

4. (A) Answer the following questions : 8
- (a) Define and discuss the concept of transitive dependency.
 - (b) What three data anomalies are likely to be the result of data redundancy ? How can such anomalies be eliminated ?

OR

Answer the following questions : 8

- (a) Explain the need of normalization in detail by giving example.
- (b) Discuss the process of conversion to 1NF.

(B) Answer briefly : 6

- (a) Define partial dependency. With what normal form is it associated ?
- (b) List the objective of normalization process.

OR

Answer briefly : 6

- (a) Explain functional dependency.
- (b) List the characteristics only of 1NF, 2NF and 3NF.

5. Do as directed. 14

(a) Fill in the blanks : 7

- (1) _____ oversees the database system's general operations.
- (2) A _____ defines the environment in which data can be managed.
- (3) _____ operator yields all possible pairs of rows from two tables.
- (4) A _____ join links tables on the basis of equality condition.
- (5) A _____ indicates number of entities associated with a relationship.
- (6) _____ ensures that each table conforms to the concept of well-formed relations.
- (7) A _____ provides detailed description of all the tables found within database.

(b) True or False : 7

- (1) The sequence of rows and columns is immaterial to the DBMS.
- (2) Composite entity is also known as bridge entity.
- (3) Hierarchical model lacked structural independence.
- (4) A strong relationship is known as non-identifying relationship.
- (5) XML cannot be used to manipulate data in text format.
- (6) Normalization add redundancy to the database.
- (7) System catalog is a system created database.
