2019

Time : 3 hours

Full Marks : 70

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

*Answer from **all** the Sections as directed.*

Section – A
(Compulsory)

1. Choose the correct answer from each of the following multiple choice questions : 2×10 = 20

   (a) Databse is generally :

   (i) System centered

   (ii) User centered

   (iii) Company centered

   (iv) Data centered

(b) DBMS manages the interaction between _____ and database.

(i) Users

(ii) Clients

(iii) End users

(iv) Stake holders

(c) Information is :

(i) Data

(ii) Processed data

(iii) Manipulated data

(iv) Any computer output

(d) A level that describes data stored in a database and the relationship among the data :

(i) Physical

(ii) Logical

(iii) User

(iv) View

(e) A characteristics of an entity :

(i) Relation

(ii) Attribute

(iii) Parameter

(iv) Constraint

(f) Which forms are based on the concept of functional dependency :

(i) 1 NF

(ii) 2 NF

(iii) 3 NF

(iv) 4 NF

(g) The attribute which is computed / calculated from other attribute is :

(i) Single valued attribute

(ii) Multi valued attribute

(iii) Composite attribute

(iv) Derived attribute

(h) The interaction operator is used to get the tuples :

(i) Different

(ii) Common

(iii) All of these

(iv) Repeating

(i) The term _____ is used to refer to a row.

(i) Attribute

(ii) Tuple

(iii) Field

(iv) Instance

(j) A relational database consists of a collection of :

(i) Tables

(ii) Fields

(iii) Records

(iv) Keys

Section – B

Answer any **four** questions of the following :

$5 \times 4 = 20$

2. Explain the functions of database Administrator.

3. Explain specialization and generalization in EER model.

4. What do you mean by relational calculas ? Explain.

5. Explain the basic query commands in SQL.

6. Discuss the various types of JOIN operations.

7. Explain Codd's rule.

8. Define Super Key, Foreign Key, Tuple, Domain and Relation.

9. Differentiate between clustered and non-clustered indexing.

Section – C

Answer any **two** questions of the following :

$15 \times 2 = 30$

10. Explain the three level architecture in DBMS. What do you mean by data independence ?

11. What role does an E-R Diagram play in DBMS ? Explain the different concepts of E-R diagram with a diagram. Write the procedure to convert E-R schema into Relational Schema.

12. Explain the fundamental operations of Relational Algebra and their implementation.

13. Explain Database security in detail.