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**BCACAC 384**

**Choice Based Credit System Sixth Semester B.C.A. Degree  
Examination, September 2022  
(2021-2022 Batch Onwards)**

**E1 : PROGRAMMING FOR ANALYTICS**

Time : 3 Hours

Max. Marks : 80

**Note :** Answer **any ten** questions from Part – A and **one full** question from **each** Unit in Part – B.

PART – A

(10×2=20)

1. a) What is the purpose of typeof() function in R ? Give an example.
- b) Name the functions used to add additional row and column in a matrix ?
- c) What is the use of str() function in a data frame ?
- d) Define database and DBMS.
- e) Name any 4 types of database users.
- f) What is first normal form ?
- g) Name the four basic SQL operations.
- h) Expand DDL and DML.
- i) What is the use of COMMIT and ROLLBACK statements in SQL ?
- j) Mention two types of SAS variables.
- k) What is the purpose of WHERE statement in SAS ? Write its syntax.
- l) Mention any four comparison operators used in SAS.

PART – B

**Unit – I**

2. a) Explain applications of R Programming in the Real World.
- b) What is a matrix ? How do you add, remove rows and columns in a matrix ? Explain with an example.
- c) List and explain various Scales of Measurement in descriptive statistics. (5+5+5)

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3. a) Explain any two R objects.
- b) Briefly explain types of data in descriptive statistics.
- c) Explain stem and leaf plot with an example. (4+6+5)

#### Unit – II

4. a) Explain the characteristics of Database Management Software.
  - b) Differentiate flat file database vs. relational database.
  - c) Write a note on Database Security. (5+5+5)
5. a) Briefly explain hierarchical model.
  - b) Explain the functions of Database Management System.
  - c) Explain the features of MYSQL. (5+5+5)

#### Unit – III

6. a) Explain the steps involved in processing an SQL statement.
  - b) Explain the statements with an example.  
i) UPDATE ii) DELETE
  - c) Explain SQL Logical operators. (5+5+5)
7. a) Explain SELECT statement in SQL and its variations.
  - b) Explain the concept of Primary Key and Foreign Key with the help of an example.
  - c) Explain any five Aggregate functions. (5+5+5)

#### Unit – IV

8. a) Briefly explain SAS architecture with diagram.
  - b) What are permanent and temporary SAS libraries ? Explain.
  - c) Explain different mathematical functions in SAS, with an example. (5+5+5)
9. a) Explain the necessary steps required to write a SAS program with an example.
  - b) How do you import an external file in SAS ? Explain with an example.
  - c) With syntax and programming example explain DO statement in SAS. (5+4+6)