(b) Explain the statistical functions available in MS-Excel with suitable example.   6

5. What are the various types of loops available in R programming ? Explain it through example.   12

6. Briefly explain the interface of SPSS.   12

7. How to present data in MS Excel using charts ? Explain various types of charts in excel.   12

8. Design an ER Diagram for a Life Insurance Company. Assume suitable entity and relations.   12

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Examination Session June-2022

(First Semester)

CDSA-101

(Certificate in Data Science & Applications)

**[Foundations of Data Science And
Data Analysis Tools]**

Time : 2 Hours]   **[Max. Marks : 100**

Note : This paper is of hundred (100) marks divided into two (02) sections A and B. Attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION—A

(Long Answer Type Questions)   2×26 = 52

Note : Section 'A' contains Five (05) long answer type questions of Twenty Six (26) marks each. Learners are required to answer any Two (02) questions only.

1. (a) What are the different forms of data types ? How to test the data type in R ? Give one example for each.   14

   (b) State the features of R Language.   12

2. (a) Explain mutable and immutable data types in python.   14

   (b) Explain any five basic operations performed on string in python.   12

SECTION—B

(Short Answer Type Questions)   4×12 = 48

Note : Section 'B' contains eight (08) short answer type questions of Twelve (12) marks each. Learners are required to answer any four (04) questions only.

4×12 = 48

1. (a) What are the components of data science ? Explain.   6

   (b) What are the different qualities of data scientist ? 6

2. (a) What are the components of Big Data ?   6

   (b) Why is data analytics used ? Explain.   6

3. (a) Write real world applications of data science.   6

   (b) Write a short note on Python Dictionaries.   6

4. (a) State the difference between Compiler and Interpreter.   6

3. (a) What do you mean by spreadsheet ? Explain some of the logical and lookup functions of MS-Excel with suitable example. 14

(b) How many data formats and charts are available in Excel ? Name some of them with example. 12

4. (a) Illuminate on all the database models with neat diagram. 14

(b) Consider the following three relations :

Teacher (T_id, T_name)

Course (Course_id, Cname, T_id)

Student (Course_id, Roll_no, Name, Batch, Semester)

Answer the following SQL queries :

(i) Find the course name taught by teacher name "Ram Sharan".

(ii) Find the course name which is not taken by the students.

(iii) Find the number of courses and teacher id taught by each teacher.

(iv) Show the names of those teachers who are teaching in BCA and MCA.

(v) Define the T_id of Teacher as a primary key by altering the table.

(vi) Show the name of all student who are in III semester. 12

5. (a) What do you mean by univariate analysis is SPSS ? Discuss in detail. Also explain the advantages and disadvantages of SPSS. 14

(b) How can you create a new variable that contains the slopes from a regression analysis by group ? 12