

**K-1115**

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[Roll No. ....]

**CDSA-101**

**Certificate in Data Science and  
Application Ist Semester  
Examination Dec., 2023**

**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 there in. *Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.*

**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.

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( 1 )

P.T.O.

1. (a) Elaborate Data Science in your own words ? What are the different tools used in data science ? [14]
- (b) Explain about roles and stages in data science project. How python is used in Data Science ? Explain in detail. [12]
2. (a) With the help of examples explain Lookup functions used in MS-excel. [14]
- (b) Explain in detail some of the real-world application of Data Science. [12]
3. How many types of charts are available in MS-excel. Explain in detail with the help of examples.
4. Write a short note on any *four* from the following :
  - (i) Pivot Table
  - (ii) VLOOKUP with multiple text function
  - (iii) IF with AND in MS-Excel
  - (iv) HLOOKUP with name range
  - (v) VLOOKUP with Arrays
  - (vi) Pivot Charts

5. A university registrar's office maintains data about the following entities : (a) courses, including number, title, credits, syllabus, and prerequisites; (b) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom; (c) students, including student-id, name, and program; and (d) instructors, including identification number, name, department, and title. Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrar's office. Document all assumptions that you make about the mapping constraints.

### Section–B

#### Short Answer Type Questions $4 \times 12 = 48$

**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.

1. What is Data Analytics ? What are different types of data Analytics available.
2. What is Panda in Python ? Mention the different types of available data structures in Pandas.
3. How MS-Excel is used for Data Analysis ? Explain with example.

4. In the terms of MS Excel, explain any *four* formulas from the following :
  - (i) Upper
  - (ii) Replace
  - (iii) Trim
  - (iv) Concatenate
  - (v) Weekday
  - (vi) Workday
5. What is Database ? What are different types of database models ?
6. What is VBA Macro ? How to record a VBA Macro ?
7. List and explain four SQL queries with example.
8. What is SPSS ? How data is entered in SPSS ? What is the process of cleaning and checking SPSS database ?

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