

A-0727

Total Pages : 4

Roll No.

CDSA-101

Certificate in Data Science and Applications (Foundations of Data Science and Data Analysis Tools)

1st Semester Examination, June 2025

Time : 2:00 Hrs.

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. *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.

1. What are the key components of the data science lifecycle, and how do they interconnect to solve real-world problems ? Also explain the significance of data science applications in real world. [26]
2. How can MS Excel be used to perform basic mathematical operations using formulas and functions ? Discuss the use of Excel's statistical functions, such as AVERAGE(), MEDIAN(), and STDEV(), in analyzing and summarizing data sets. [26]
3. Discuss in detail the process of automating repetitive tasks in Excel using formulas, macros, and VBA scripting. [26]
4. How can you filter data in Excel to show only records that meet certain criteria ? What is the purpose of PivotTables in Excel ? Explain with example. [26]
5. Describe the ethical considerations in data science, including data privacy, bias, and the implications of using predictive models in sensitive domains. Also, explain the role of data visualization tools in interpreting and presenting data insights effectively. [26]

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.

1. Compare and contrast popular programming languages used in data science, such as Python, and R, focusing on their strengths and ideal use cases. [12]
2. How can Excel’s TEXT functions, i.e. CONCATENATE(), TEXT(), LEFT(), RIGHT(), MID() be used for advanced data formatting and manipulation ? Explain. [12]
3. What are the advanced features of conditional formatting, and how can they be applied to create interactive and visually impactful spreadsheets ? [12]
4. What do you mean by relative and absolute cell referencing MS Excel ? Explain using suitable example. [12]
5. Describe the role of Excel’s charting and graphing capabilities in visualizing mathematical trends and patterns within complex data sets. [12]

6. Explain the following functions used in MS Excel-
COUNT(), COUNTA(), COUNTBLANK(),
COUNTIF(), COUNTIFS(). [12]
7. What are the different types of data science roles, i.e.
data analyst, data engineer, machine learning engineer,
and how do their responsibilities and skill requirements
differ from each other ? Explain. [12]
8. What are the most commonly used tools in data science,
and how do their features address the diverse needs of
data preprocessing, analysis, and visualization ? [12]
