

Roll No.

3154

B. Tech. 4th Semester (CSE Data Science)

Examination – May, 2023

PROGRAMMING FOR DATA SCIENCE & AIML

Paper : PCC-CSE-250-G

Time : Three hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

1. (a) What is the difference between = and == in Python ? 15
- (b) How do you use break and continue statements in loops ?
- (c) How are elements in a 2D array indexed, and what are some common indexing schemes ?
- (d) How can you read data from a CSV file in Python ?
- (e) How are ticks automatically placed in a plot, and what are some common tick placement algorithms ?

- (f) What is a BoxPlot, and what information does it convey about a dataset?
- (g) How can regression plots be used to explore the relationship between two variables?
- (h) What is text normalization, and why is it important in natural language processing (NLP)?

UNIT – I

2. What is a variable in Python? How do you assign a value to a variable in Python? How do you check the value of a variable in Python? Can you change the data type of a variable in Python? What is variable scope in Python? How do you delete a variable in Python? Can you have multiple variables with the same name in different scopes in Python? 15
3. Write a program that uses a for loop and the range() function to print the numbers 1 to 20, but replaces multiples of 3 with "Fizz" and multiples of 5 with "Buzz". For numbers that are multiples of both 3 and 5, print "FizzBuzz". What is file handling in Python? How do you open and close a file in Python? How do you read, write, append, delete the contents of a file in Python? Give an example. 15

UNIT – II

4. What is a uniform distribution in NumPy? How do I generate an array of random numbers with a uniform

distribution using a specific dtype in NumPy? How do I reshape an array into a different shape with the same number of elements in NumPy? How do I reverse, transpose the order of elements in an array using reshaping in NumPy? 15

5. What is a series in Pandas? How do I create a series from a list in Pandas? How do I specify the index for a series created from a list in Pandas? Can I create a series from a list of tuples in Pandas? How do I access, modify, delete, append, insert, sort and filter elements in a series created from a list in Pandas? 15

UNIT – III

6. What is data visualization and why is it important? What are the different categories of visualizations and what are the strengths and weaknesses of each category? What are the key considerations when selecting a visualization type? What is the difference between categorical and continuous data in visualizations? 15
7. What is a KDE plot and how is it constructed? How does the bandwidth parameter affect the shape of a KDE plot? What is the difference between a KDE plot and a histogram? How can a KDE plot be used to estimate the underlying probability density function of a dataset? What are some common applications of KDE plots in data analysis and visualization? 15