

GUJARAT TECHNOLOGICAL UNIVERSITY
BE(MINOR) - SEMESTER-IV EXAMINATION – SUMMER 2023

Subject Code:114AT01**Date:14-08-2023****Subject Name:Introduction to Data Science****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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|------------|---|-----------|
| Q.1 | (a) Why Python is used for Data science? | 03 |
| | (b) Data science is used in which different sectors? Explain in brief. | 04 |
| | (c) What is the process of data analytics? Explain each step in detail. | 07 |
| Q.2 | (a) What is prediction in data analysis? | 03 |
| | (b) List various Predictive and Prescriptive analytics techniques. Explain each in brief. | 04 |
| | (c) Exploratory Data Analysis (EDA) Quantitative Technique in detail. | 07 |
| | OR | |
| | (c) Exploratory Data Analysis (EDA) Graphical Technique in detail. | 07 |
| Q.3 | (a) Write a Python Program for checking whether the given number is odd or even. | 03 |
| | (b) Give a comparison between Numpy and Pandas. | 04 |
| | (c) Write a Python program to do the following: | 07 |
| | 1) To create a list with six numbers. | |
| | 2) To sum all the numbers in a list. | |
| | 3) To get the largest number from a list. | |
| | 4) To find the second largest number from a list. | |
| | OR | |
| Q.3 | (a) Write a Python program to check whether a string is a palindrome or not. | 03 |
| | (b) Write a Python program to create and print a Numpy 2D and 3D array. | 04 |
| | (c) Write a Python program to print a dictionary where the keys are numbers between 1 and 5 (both included) and the values are the squares of the keys.
Sample Dictionary :- {1: 1, 2: 4, 3: 9, 4: 16, 5: 25} | 07 |
| Q.4 | (a) Differentiate quantitative data and qualitative data with an example. | 03 |
| | (b) Write a Python program to generate a 1-D array containing 100 values, where each value has to be 10, 20, 50 or 75.
The probability for the value to be 10 is set to be 0.4
The probability for the value to be 20 is set to be 0.2
The probability for the value to be 50 is set to be 0.1
The probability for the value to be 75 is set to be 0.3 | 04 |
| | (c) Explain significance of Histogram, Skewness and Kurtosis in data analytics. | 07 |

OR

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|------------|------------|--|-----------|
| Q.4 | (a) | What is DataFrame in Panda? | 03 |
| | (b) | Write a Python program to draw a line in a diagram from position (10, 10) to position (250, 250) using Matplotlib. | 04 |
| | (c) | Explain Data Visualization with basic ideas and tools used for data visualization. | 07 |
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| Q.5 | (a) | Explain any one Python bitwise operator with an example. | 03 |
| | (b) | What is Feature Generation? Explain in brief. | 04 |
| | (c) | Explain Feature selection in detail. | 07 |
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| OR | | | |
| Q.5 | (a) | Write a Python program to create a filter array. | 03 |
| | (b) | Discuss the use of Data science in the agricultural field. | 04 |
| | (c) | Explain Data science with different ethical issues in detail. | 07 |
