

GUJARAT TECHNOLOGICAL UNIVERSITY**BE(MINOR)- SEMESTER-I&II EXAMINATION – SUMMER 2025****Subject Code:114AT01****Date:03-06-2025****Subject Name: Introduction to Data Science****Time:10:30 AM TO 01:00 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) Define data science and machine learning in detail. | 03 |
| | (b) List out machine learning algorithms and provide a brief explanation of any two. | 04 |
| | (c) Describe social media analytics and web data analytics in brief. | 07 |
| Q.2 | (a) Explain data types and scales in descriptive analytics. | 03 |
| | (b) Explain skewness and kurtosis in Detail. | 04 |
| | (c) Explain need of python for data science. | 07 |
| | OR | |
| | (c) Write a short note on EDA (Exploratory Data Analysis). | 07 |
| Q.3 | (a) Explain any one python bitwise operator with an example. | 03 |
| | (b) Define Feature Generation and Feature Selection. What is the difference between feature generation and feature selection? | 04 |
| | (c) Explain any one feature selection algorithm. | 07 |
| | OR | |
| Q.3 | (a) Write a short note on data visualization. | 03 |
| | (b) Write a Python program to interchange first and last elements in a list. | 04 |
| | (c) Explain DataFrame in Panda. | 07 |
| Q.4 | (a) Explain Data Science and Ethical Issues - Discussions on privacy, security. | 03 |
| | (b) Write a Python program to build a password strength checker. | 04 |
| | (c) Write a Python program to check Armstrong number. | 07 |
| | OR | |
| Q.4 | (a) What make data visualization effective? | 03 |
| | (b) Write a Python program to find largest elements in array. | 04 |
| | (c) Write a Python program to build a Currency Converter from Indian currency to USA currency. | 07 |
| Q.5 | (a) List various Predictive and Prescriptive analytics techniques. Explain each in brief. | 03 |
| | (b) Give a comparison between Numpy and Pandas. | 04 |
| | (c) Differentiate quantitative data and qualitative data with an example. | 07 |
| | OR | |
| Q.5 | (a) How data science is useful in sector of Health Sector? | 03 |
| | (b) Write a Python program drawing a scatter plot with use of matplotlib libraries. | 04 |
| | (c) Write a Python program to find mean and median value of 1 to 10 number with use of Numpy libraries. | 07 |
