

GUJARAT TECHNOLOGICAL UNIVERSITY**B.VOC - SEMESTER– II EXAMINATION – SUMMER 2024****Subject Code: 1122201****Date:24-05-2024****Subject Name: Business Statistics****Time:10:30 AM TO 12:30 PM****Total Marks:50****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.

Q.1 (a) Define Statistics. Also discuss the importance and limitations of Statistics. **5**

Q.1 (b) What is variable? Differentiate between dependent and independent variable along with an example. **5**

Q.2 (a) Explain different types of Graphs and Charts. **5**

Q.2 (b) Calculate Mean, Median and mode of the following data: **5**
12 10 11 8 15 17 8 14 20 16

OR

Q.2 (b) Calculate Mean and mode of the following data: **5**

| | | | | | |
|-----------|-------|--------|---------|---------|---------|
| Class | 0 – 5 | 5 – 10 | 10 – 15 | 15 – 20 | 20 - 25 |
| Frequency | 5 | 9 | 14 | 21 | 16 |

Q.3 (a) What is correlation? Discuss different types of correlation. **5**

Q.3 (b) Write a note on Spearman's rank correlation method. **5**

OR

Q.3 (a) The lengths and weights of five units taken from a manufacturing process are given below: **5**

Find the correlation coefficient between the length and weight.

| | | | | | |
|--------|---|----|----|----|----|
| Length | 3 | 4 | 6 | 7 | 10 |
| Weight | 9 | 11 | 14 | 15 | 16 |

Q.3 (b) Find equation of regression line. **5**

| | | | | | | | |
|---|----|----|----|----|----|---|---|
| X | 12 | 4 | 11 | 14 | 10 | 9 | 6 |
| Y | 9 | 10 | 8 | 16 | 8 | 5 | 9 |

Q.4 (a) What is time series analysis? Discuss its important components. **5**

Q.4 (b) Find trend values by three yearly moving average. **5**

| | | | | | | | | |
|------|------|------|------|------|------|------|------|------|
| Year | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Y | 45 | 48 | 54 | 47 | 51 | 58 | 49 | 44 |

OR

Q.4 (a) Find trend by 5 yearly moving average **5**

| | | | | | | | | |
|-------|------|------|------|------|------|------|------|------|
| Year | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| Sales | 34 | 25 | 27 | 40 | 45 | 54 | 50 | 47 |

Q.4 (b) Define the following terms: **5**

- i. Range
- ii. Quartiles
- iii. Discrete variable
- iv. Continuous variable
- v. Weighted moving average

Q.5 (a) Differentiate between population and sample? Why do we do the study on sample instead of population? Give your view on the previous statement. **5**

Q.5 (b) Write a note on Simple Random Sampling. **5**

OR

Q.5 (a) Discuss the characteristics of a good sample. **5**

Q.5 (b) Draw a histogram and a frequency polygon for the given data. **5**

| | | | | | | |
|-----------|--------|---------|---------|---------|---------|---------|
| Class | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 | 50 - 60 |
| Frequency | 6 | 11 | 17 | 10 | 8 | 3 |
