



Registration Number:

Date & session:

ST. JOSEPH'S UNIVERSITY, BENGALURU -27
B.Sc. (Open Elective) – I SEMESTER
SEMESTER EXAMINATION: OCTOBER 2022
(Examination conducted in December 2022)
STOE 1 – STATISTICAL METHODS

Time: 2 Hours

Max Marks: 50

This paper contains TWO printed pages and ONE part

Answer any five from the following

10*5=50

1. A) Define Statistics. Mention any two scopes of statistics. (3)
B) Explain different scales of measurement with example. (4)
C) The data given below is based on a survey to find which kind of movie people liked best. Visualize the data with appropriate diagram. (3)

Comedy	Action	Romance	Drama	Sci-Fi
10	4	15	12	20

2. A) Following figures show Profit (in ₹1000) of 99 companies. Obtain median profit graphically. (5)

Profit (in ₹1000)	0-15	15-30	30-45	45-60	60-75	75-90	90-105	105-120	120-135	135-150
No. of companies	3	7	18	25	20	12	6	5	2	1

- B) Define measure of central tendency. Mention different measures. (2)
C) Briefly explain kurtosis with neat diagram. (3)

3. A) The following are marks in Statistics (X) and Mathematics (Y) of ten students

X	56	55	58	52	57	66	60	54	59	67
Y	68	57	67	70	65	58	70	60	59	66

Calculate the rank correlation and give the conclusion. (5)

- B) Calculate the value of the mode from the following data. (5)

Monthly rent (In ₹10000)	2 – 4	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14	14 – 16	16 – 18	18 – 20
No. of families	6	9	11	14	20	15	10	8	7

4. A) Explain briefly about scatterplots including its construction, interpretation etc. (4)
B) Define simple linear regression? (1)
C) Give the probability density function of Normal distribution. Mention the characteristics of normal distribution. (5)

5. A) Define following with examples:
 - a. Random experiment
 - b. Sample space
 - c. Mutually Exclusive Events (3)B) Give the classical definition of probability. Give its limitations. (2)

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- C) If two dice are thrown, what is the probability that sum is (5)
- a. Greater than 9
 - b. Neither 10 or 12.
 - c. Less than 4
6. A) State the addition theorem and multiplication theorem of probability. (3)
- B) Give any four properties of probability. (2)
- C) Explain the test procedure for testing the significant difference between two population mean. (5)
7. A) Distinguish between
- d. Null hypothesis and Alternate hypothesis.
 - e. Type I Error and Type II Error. (4)
- B) A random sample of 18 energy bars from a number of different stores to represent the population of energy bars available to the general consumer. The labels on the bars claim that each bar contains 20 grams of protein.

Energy Bar - Grams of Protein								
20.70	27.46	22.15	19.85	21.29	24.75	22.14	19.56	21.10
20.75	22.91	25.34	20.33	21.54	21.08	18.04	24.12	19.95

Test the claim at 5% level of significance. Take critical value as ± 2.1098 (6)