M.E.S. VASANT JOSHI COLLEGE OF ARTS AND COMMERCE, ZUARINAGAR – GOA

B.Com. (NEP) III Semester End (Regular & Repeat) Assessment, November, 2024

Minor – BUSINESS STATISTICS - I (COM-213)

Instructions: i*) All questions are compulsory.*

ii) Figures to the right indicate full marks.

iii) Use of simple (non-scientific) calculator is allowed.

Time: 02 Hours Total Marks: 80

Q 1. Answer each of the following: **$08 \times 02 = 16$ Marks**

i. State any two published sources of secondary data.

ii. Define (a) Population (b) Sample

iii. Describe the different types of questions in a questionnaire.

iv. Write any two merits of sample method over census method.

v. Write one merit and one demerit of Geometric mean.

vi. Define Range and write the formula for coefficient of range.

vii. Write two properties of coefficient of correlation.

viii. Write any two merits of method of moving averages

Q 2. A. Prepare a Bivariate frequency distribution for the following data for 20 students:

Marks in law	10	11	10	11	11	14	12	12	13	10
Marks in Statistics	20	21	22	21	23	23	22	21	24	23
Marks in law	13	12	11	12	10	14	14	12	13	10
Marks in Statistics	24	23	22	23	22	22	24	20	24	23

Also obtain the marginal frequency distributions of the marks in law and marks in statistics.

(12 Marks)

OR

Q 2. B. In a survey it was found that 64 families bought milk in the following quantities(liters) in a particular week. 19, 16, 22, 9, 22, 12, 39, 19, 14, 23, 6, 24, 16, 18, 7, 17, 20, 25, 28, 18, 10, 24, 20, 21, 10, 7, 18, 28, 24, 20, 14, 23, 25, 34, 22, 5, 33, 23, 26, 29, 13, 36, 11, 26, 11, 37, 30, 13, 8, 15, 22, 21, 32, 21, 31, 17, 16, 23, 12, 9, 15, 27, 17, 21. Using Sturge's rule, convert the above data into a frequency distribution by Inclusive method. ($\log_{10} 64 = 1.8062$) **(12 Marks)**

Q 2. C. State and explain any four principles of questionnaire design. **(4 Marks)**

Q 3. A. Explain the following methods of sampling and write the merits and demerits for each of them. (a) Simple random sampling (b) Systematic sampling (c) Multistage sampling (d) Quota sampling. **(12 Marks)**

Q 3. B. Draw a multiple bar diagram from the following data: **(4 Marks)**

Years	Sales	Gross Profit	Net Profit
2017	120	40	20
2018	135	45	30
2019	140	55	35

OR

Q 3. C. Represent the following data by a histogram: **(4 Marks)**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	8	12	22	35	40	60	52	40

Q 4. A. Calculate Karl Pearson's coefficient of skewness: $(\sqrt{3.21} = 1.7916)$ **(12 Marks)**

x	12.5	17.5	22.5	27.5	32.5	37.5	42.5	47.5
f	28	42	54	108	129	61	45	33

Q 4. B. Calculate the Spearman's correlation coefficient for the rank of 10 students assigned by two teachers. **(4 Marks)**

Students	1	2	3	4	5	6	7	8	9	10
Rank(Teacher 1)	8	7	6	3	2	1	4	9	10	5
Rank(Teacher 2)	10	8	5	2	1	3	6	9	7	4

OR

Q 4. C. Fit a straight line trend for the following data by the least square method. **(4 Marks)**

Year	2015	2016	2017	2018	2019
Production	12	20	28	32	50

Q 5. A. A research company summarized advertising expenditure and sales results as follows:

	Adv. Expenditure (in crores)	Sales (in crores)
Mean	20	200
Standard Deviation (S.D)	18	170
Karl Pearson's correlation coeff. (r)	0.6	

Derive the two regression lines. **(12 Marks)**

Q 5. B. Calculate the median from the following data: **(4 Marks)**

marks	0-10	10-30	30-60	60-80	80-90
No. of students	5	15	30	8	2

OR

Q 5. C. Calculate the 20^{th} Percentile from the following data: **(4 Marks)**

Central Value	0-5	5-10	10-15	15-20	20-25
frequency	7	18	25	30	20