

IM.SC.(CS)(NEP) Sem.-2 Examination

Computer Oriented Statistical Methods

June-2025

Date ; 25/6/2025, Wednesday

Time : 2.00 Hours]

[Max.Marks : 25

Q 1

- a) The number of meteorites found in 10 states of the United States is 89, 47, 164, 296, 30, 215, 138, 78, 48, 39. (10)
- Is the variable are categorical or quantitative?
 - Indicate the measurement scale of the variables.
 - Is the data time series or cross-sectional?
- Calculate iv) mean, v) Q1, vi) Q2, vii) Q3, viii) IQR.
- Construct a boxplot for the data.
 - Comment on the skewness of the data.

OR

Q 1

- a) Table displays the number of stories in tall buildings in Atlanta (10)

55	70	44	36	40	63	40	44	34	38	60	47
52	32	32	50	53	32	28	31	52	32	34	32
50	26	29									

Construct i) a dot plot ii) a stem-and-leaf display

Use classes of 20–29, 30–39, and so on in the following:

Show iii) the frequency distribution, iv) relative frequency distribution

v) percent frequency distribution vi) the less than or equal to cumulative frequency distribution.

Compute vii) mean, viii) variance and ix) standard deviation for the frequency distribution

x) Comment on the skewness of the data

Q 2

- a) Data (in thousands of dollars) on adjusted gross income and the average or reasonable amount of itemized deductions follow. (5)

Income	22	27	32	48	65	85	120
Deduction	9.6	9.6	10.1	11.1	13.5	17.7	25.5

Use the least squares method to develop the estimated regression equation.

- b) Five observations taken for two variables follow. (5)

x	6	11	15	21	27
y	6	9	6	17	12

i) Compute and interpret the sample covariance.

ii) Compute and interpret the sample correlation coefficient.

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OR

Q 2

- a) Suppose a random sample of 20 dietitians is taken and these dietitians are asked "What is the major reason people want to lose weight?" The responses were classified as Health (H), Cosmetic (C), and Other (O) as follows. (5)

H H C H O C C H C O
O H C H H C H H O H

- i. Prepare a frequency distribution table.
ii. Compute the relative frequencies and percentages for all categories.
iii. What percentage of these dietitians gave Health as the major reason?
b) The estimated regression equation for these data is $y = 0.2 + 2.6x$ (5)

x	1	2	3	4	5
y	3	7	5	11	14

Compute SE, SST, SSR, coefficient of determination, correlation coefficient

Q 3 Attempt any five (5)

- a) The average age of the accountants at Three Rivers Corp. is 26 years, with a standard deviation of 6 years; the average salary of the accountants is \$31,000, with a standard deviation of \$4000. Compare the variations of age and income.
b) A survey of local companies found that the mean amount of travel allowance for executives was \$0.25 per mile. The standard deviation was \$0.02. Using Chebyshev's theorem, find the minimum percentage of the data values that will fall between \$0.20 and \$0.30.
c) Name treatise written by Acharya Pingala
d) Who is the founder of Kerala school of astronomy and mathematics.
e) Explain the achievements of Aryabhata I
f) Explain the achievements of Shridhara
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