



18UST1AL02 – FUNDAMENTALS OF STATISTICS

Date: 10-05-2025

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A

Answer ANY FOUR of the following

(4 x 10 = 40)

1. Explain the limitations of Statistics.
2. Construct a Histogram and Frequency Polygon for the following frequency distribution:

Marks:	22 – 28	29 – 35	36 – 42	43 – 49	50 – 56	57 – 63	64 – 70
No. of students:	2	3	10	18	15	5	6

3. Calculate Geometric mean and Harmonic mean for the following data:

X	10	20	30	40	50
f	20	30	50	15	5

4. Two samples of size 40 and 50 have the same mean 53, but different standard deviation 19 and 18 respectively. Find the standard deviation of the combined sample of size 90.
5. Explain one dimensional diagrams
6. Calculate Spearman's Rank correlation co-efficient for the following data:

X	54	98	95	82	75	70	58
Y	47	26	33	37	30	39	41

7. From the following data, fit the straight line trend by the method of Semi-averages.

Year	2010	2011	2012	2013	2014
Profits (Rs. Lakhs)	28	29.4	32	27	32.5

8. From the following data construct an index for 2014 taking 2013 as base by the average of relatives method using (a). Arithmetic mean and (b). Geometric mean for averaging relatives.

Commodities:	A	B	C	D	E
Price in 2013 (Rs.)	50	40	80	110	20
Price in 2014 (Rs.)	70	60	90	120	20

SECTION B

Answer ANY THREE of the following

(3 x 20 = 60)

9. From the following data, calculate mean, median and mode:

X	50-53	53-56	56-59	59-62	62-65	65-68	68-71	71-74	74-77
f	3	8	14	30	36	28	16	10	5

10. Using the following data, construct Fisher's Ideal Index and show that it satisfies Time reversal test Factor reversal test.

Commodity	Base year		Current year	
	Price (Rs.)	Quantity (in kg)	Price (Rs.)	Quantity (in kg)
A	10	12	12	15
B	7	15	5	20
C	5	24	9	20
D	16	5	14	5

11. Calculate Karl Pearson's coefficient of skewness for the following data:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	5	8	7	12	28	20	10	10

12. Compute 4-yearly moving average values for the following data.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Production	24	28	34	42	52	64	78	94	112	132	154	178

13. Following are the marks obtained by two students A and B in 10 tests:

Tests	1	2	3	4	5	6	7	8	9	10
Marks obtained by A	44	80	76	48	52	72	68	56	60	54
Marks obtained by B	48	75	54	60	63	69	72	51	57	66

If consistency of performance is the criterion for awarding a prize, which student should get the prize?

14. Calculate the correlation coefficient and rank correlation for the following data:

Advertisement: (Cost Rs.000)	43	44	46	40	44	42	45	42	38	40	42	57
Sales: (Rs. in lakhs)	29	31	19	18	19	27	27	29	41	30	26	10

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