Reg. No……………………………..…….   Name…………………………………………………………………

BA / BSc / BCOM DEGREE END SEMESTER EXAMINATION - NOVEMBER 2024

UGP (HONS.) SEMESTER - 1: DISCIPLINE SPECIFIC COURSE (STATISTICS)

COURSE: 24USTADSC101/24UEMSDSC103: FUNDAMENTALS OF STATISTICS AND DATA VISUALISATION

(For Regular 2024 Admission)

Time: 2 Hours   Max. Marks: 70

(Use of Scientific calculators and Statistical tables permitted)

PART A
(Each question carries 2 mark. Maximum marks from this part is 10)
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1. Distinguish between probability sampling and non-probability sampling.
2. Distinguish between simple arithmetic mean and weighted arithmetic mean
3. Define mean deviation.
4. For a distribution standard deviation is 2, what should be the value of μ_4 so that the distribution is mesokurtic?
5. What is scatter diagram?
6. Write the two regression equations.
7. State the addition theorem of probability
8. If A and B are independent events then $P(A/B)$ is -------

PART B
(Each question carries 5 marks. Maximum marks from this part is 30)

9. Define simple random sampling. Explain method of drawing a random sample using simple random sampling.
10. The following are the marks of 20 students. Calculate the Arithmetic Mean

20	40	54	66	80	34	72	25	42	56	68	85
51	94	28	48	58	70	88	62				

11. The arithmetic mean and s.d. of a series of 20 items were calculated by a student as 20 cm and 5 cm respectively. But calculating them an item 13 was misread as 30. Find the correct s.d.?
12. Define kurtosis? Given the 2nd, 3rd and 4th central moments are 50, 100 and 6600 find the measure of kurtosis.
13. Distinguish between raw moments and central moments.
14. Distinguish between correlation and regression.

15. Find Spearman's rank correlation co-efficient from the following data.

Individual	A	B	C	D	E	F	G	H	I	J
Rank before	1	6	3	9	5	2	7	10	8	4
Rank after	6	8	3	2	7	10	5	9	4	1

16. Define conditional probability. Also state multiplication theorem of probability.

PART C
(Each question carries 15 marks. Maximum marks from this part is 30)

17. The following distribution gives the marks obtained by a group of students in Statistics. Find the mode.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No.of Students	8	12	20	23	18	7	2

18. Calculate the S. D for the data given below. Also calculate the coefficient of variation.

Class	0 - 20	20 - 40	40 - 60	60 - 80
Frequency	5	16	14	5

19. The following table gives the sales (X) and advertising expenditure (Y) of a firm. Find the regression equation of sales on advertising expenditure. Also estimate the sale for an advertising expenditure of 90.

Sales(X)	10	11	13	15	16	19	14
Advertising expenditure(Y)	60	62	65	70	73	75	71

20. Two classes A & B consist of 25 boys, 15 girls and 20 boys, 30 girls respectively. One student is selected at random and found to be a girl. Find the probability that she was from class B.