Reg. No. : ....

Name : ....

First Semester B.Sc. Degree (C.B.C.S.S. – OBE-Supplementary/ Improvement) Examination, November 2024
(2019 to 2023 Admission)
CORE COURSE IN STATISTICS
1B01 STA : Introductory Statistics

Time : 3 Hours　　　　　　　　　　　　　　　　　　　　Max. Marks : 48

Instruction : Use of calculators and statistical tables are permitted.

PART – A

Answer **all** questions. Each question carries **one** mark.　　　　　(6×1=6)

1. Define secondary data.
2. What is the use of Lorenz curve ?
3. Find the sum of 15 observations with mean 32.
4. Write the formula for finding Kurtosis based on moments.
5. Define simple correlation between two random variables X and Y.
6. What is meant by inflation ?

PART – B

Short answer questions. Answer **any 7** questions. Each question carries 2 marks.　　　　　　　　　　　　　　　　　　　　(7×2=14)

7. Define Statistics as data.
8. Draw a pie diagram for the following data :

Summer	Winter	Monsoon
120	80	60

9. Two sets of observations of equal size 30 have means 12,18 respectively. Find the mean of the combined set.

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10. A person walk 8 km at a speed of 4 km/hr, 6 km at a speed of 3 km/hr and 4 km at a speed of 2 km/hr. What is the average speed per hour ?

11. For a group of 10 items $\sum X = 452$, $\sum X^2 = 24270$ and mode = 43.7. Find Pearsonian coefficient of skewness.

12. Define 'moment'. Express the first three central moments in terms of moments about origin.

13. Define Kurtosis and how will you measure kurtosis ? How will you interpret the result ?

14. i) Define the term price relatives.
    ii) What is cost of living index number ?

15. The first four moments of a distribution about origin are –1.5, 17, –30 and 108. Find variance and third moment about mean.

PART – C

Short essay questions. Answer **any 4** questions. Each question carries 4 marks.　　　　　　　　　　　　　　　　　　　　(4×4=16)

16. The numbers 3, 5, 7, and 4 have frequencies x, (x + 2), (x – 3) and (x + 6) respectively. If their arithmetic mean is 3, find the value of x.

17. An analysis of monthly wages paid to the workers of two firm A and B belonging to the same industry gives the following results :

	Firm A	Firm B
No. of workers	100	150
Average monthly wages	Rs. 34,000/-	32,500/-
Variance of distribution of wages	81	100

Which firm A or B, is there greater variability in individual wages ?

18. First three moments of a distribution about the value 4 are 1, 16 and 40 respectively. Examine the skewness of the distribution.

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19. From the following data, compute the co-efficient of correlation between X and Y.

	X series	Y series
No. of items	15	15
Arithmetic Mean	25	18
Sum of squares of deviations from mean	136	138

Summation of product of deviations of X and Y series from the respective arithmetic mean = 122.

20. The ranks of 5 students in three subjects Computer, Physics and Statistics is given below. Using rank correlation coefficient, find the subjects which have the same trend.

Rank in Computer	2	4	5	1	3
Rank in Physics	5	1	2	3	4
Rank in Statistics	2	3	5	4	1

21. An enquiry into the budgets of middle class families gave the following information :

Expenses on	Food	Rent	Clothing	Fuel	Others
	30%	15%	20%	10%	25%
Prices in Rs. (1982)	100	20	70	20	40
Prices in Rs. (1983)	90	20	60	15	35

Compute the price index number using weighted arithmetic mean of price relatives.

PART – D

Essay questions. Answer **any 2** questions. Each question carries 6 marks.　　　　　　　　　　　　　　　　　　　　(2×6=12)

22. What are the different methods of collecting primary data ? Explain. What points must be considered while preparing a questionnaire ?

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23. The purchasing agents receive samples of envelopes from two suppliers. He had the samples tested in his own laboratory for testing weights with the following results.

Testing Weight	Company A	Company B
50 – 60	3	10
60 – 70	42	16
70 – 80	22	36
80 – 90	3	8
Total	**70**	**70**

Which company's envelope is more reliable inequality ?

24. Define skewness. What are the different methods of studying skewness ? State the tests of skewness.

25. Check whether the Fisher's index number satisfy both Time reversal test and factor reversal test using the following information.

Year	Article I		Article II		Article III		Article IV	
	Price	Quantity	Price	Quantity	Price	Quantity	Price	Quantity
1982	5.0	5	7.75	6	9.63	4	12.5	9
1983	6.5	4	8.8	10	7.75	6	12.75	9