



Reg. No. :

Name :

II Semester B.Sc. Degree (CCSS – Reg./Supple./Improv.)
Examination, May 2014
CORE COURSE IN STATISTICS
2B02 STA : Descriptive Statistics

Time: 3 Hours

Max. Weightage: 30

Instruction : Use of *calculators* and *tables* are *permitted*.

PART – A

Answer **any 10** questions :

1. Define standard deviation. Why is it considered as the best measure of dispersion ?
2. Explain skewness of a distribution.
3. What is a scatter diagram ? How is it useful in analysing the nature of relationship between two variables ?
4. What are the properties of regression coefficients ?
5. Distinguish between partial and multiple correlation coefficients.
6. Define time series. What are the components of a time series ?
7. Explain additive and multiplicative models of time series.
8. What are the uses of time series ?
9. Define an index number. State the important uses of index numbers.
10. Explain time reversal test of an index number. Show whether or not Laspeyzer's index number satisfies this test.
11. What is meant by consumer price index numbers.

(10×1=10)

P.T.O.



PART - B

Answer any six questions.

(Wt. 2 each)

12. Define coefficient of quartile deviation. Calculate the coefficient of quartile deviation for the data given below :

Class :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequency :	8	12	18	14	8

13. Ten pairs of values of variables x and y gave the following results.

$\bar{X} = 13$, $\bar{Y} = 22$, $N = 10$, $\Sigma X^2 = 2288$, $\Sigma Y^2 = 5506$, $\Sigma XY = 3467$. Obtain the two regression equations.

14. Explain the method of fitting a curve of the form $y = a.x^b$ to a given data.

15. Identify the following two regression equations. Also calculate \bar{X} , \bar{Y} and correlation coefficient.

$$3X + 2Y - 26 = 0, 6X + Y - 31 = 0.$$

16. In a trivariate distribution $r_{12} = 0.6$, $r_{23} = r_{31} = 0.8$ find the values of $R_{1,23}$ and $r_{23,1}$.

17. What is secular trend ? Explain the semi-average method of isolating the trend.

18. Fit a straight line trend to the following data and tabulate the trend values.

Year :	2004	2005	2006	2007	2008	2009	2010
Production :	100	120	110	140	155	175	180

19. Describe the method of moving averages for calculating trend of a time series.

20. Compute Fisher's ideal index number from the following data :

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	2	100	3	120
B	4	60	6	70
C	10	30	13	20

(6×2=12)



PART - C

Answer any two questions :

(Wt. 4 each)

21. The following table gives data relating to income of employees in a factory. Draw a Lorenz curve to show the in equality in income.

Income (in Rs.) :	0 - 200	200 - 500	500 - 1000	1000 - 2000	2000 - 3000
No. of workers :	700	1000	1200	800	500

22. Calculate Karl Pearson's coefficient of correlation from the following data :

X Series : 44 46 46 48 52 54 54 56 60 60

Y Series : 36 40 42 40 42 44 46 48 50 52 .

23. Calculate seasonal indices by the ratio to moving average method from the following data :

		Year			
		2001	2002	2003	2004
Quarter	I	75	86	90	100
	II	60	65	72	78
	III	54	63	66	72
	IV	59	80	85	93

24. Explain the problems encountering in the construction of index numbers. (2x4=8)