



M 7891

Reg. No. :

Name :

I Semester B.Sc. Degree (CCSS – Regular)

Examination, November 2014

(2014 Admn.)

COMPLEMENTARY COURSE IN STATISTICS FOR MATHEMATICS/
COMPUTER SCIENCE (Core)

1C 01 STA : Basic Statistics

Time : 3 Hours

Max. Marks : 40

Instruction : Use of calculators and statistics tables are permitted.

PART – A
(Short Answer)

Answer **all** the 6 questions :

(6×1=6)

1. Distinguish between primary and secondary data.
2. Define weighted arithmetic mean.
3. Define coefficient of variation.
4. Explain mixed sampling.
5. Define rank correlation.
6. Define index number.

PART – B
(Short Essay)

Answer **any** 6 questions :

(6×2=12)

7. Explain stratified random sampling.
8. Explain the mathematical properties of arithmetic mean.
9. Distinguish between absolute and relative measures of dispersion.

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10. Obtain the relationship between ran moments and central moments.
11. Define skewness and kurtosis.
12. The two regression lines are $3x + 12y = 10$ and $3y + 9x = 46$ find means of x and y .
13. Define partial and multiple correlation.
14. Explain the components of time series.

**PART – C
(Essay)**

Answer **any 4** questions :

(4×3=12)

15. Find the harmonic mean for the following data :

2574, 475, 75, 5, 0.8, 0.08, 0.005, 0.0009

16. An analysis of monthly wage of workers of two organisations A and B yielded the following results :

	Organisation	
	A	B
No. of workers	150	180
Average (in hundreds)	Rs. 52	Rs. 48
Variance	100	124

Obtain the average monthly income and the standard deviation of wages of all workers in the two organisations taken together. Which organisation is more equitable in regard to wages ?

17. Explain the method of fitting a curve of the type $y = ax^b$ to a given bivariate data.
18. Show that the correlation coefficient is independent of the change of origin and scale.
19. In a trivariate population $r_{12} = 0.72$, $r_{13} = 0.65$, $r_{23} = 0.45$. Find $R_{1,2,3}$ and $r_{12,3}$.
20. Explain various tests for index numbers.



**PART – D
(Long Essay)**

Answer **any 2** questions :

(2×5=10)

21. Fit the straight line $y = a + bx$ and the exponential curve $y = ae^{bx}$ for the following data and examine which is more suitable ?

X	1	2	3	4	5
Y	1.8	3.5	6.8	9.2	12.5

22. Calculate the value of the Pearsons coefficient of correlation for the following data :

X	47	52	52	52	54	56	58	59	60	60	62	64
Y	2.5	2.7	2.8	2.9	3.2	3.2	3.3	3.4	3.5	3.5	3.5	3.6

23. Fit a straight line trend by the method of least squares for the following time series data :

Year	1990	1991	1992	1993	1994	1995	1996	1997
Sales	80	90	92	83	94	99	92	104

24. Calculate the Laspeyer's and Paasche's index number for the following data :

Commodity	2000		2010	
	Price	Quantity	Price	Quantity
A	26	40	40	40
B	30	60	35	50
C	18	120	25	120
D	14	100	15	100
E	12	50	10	60