K15U 0601

Reg. No. : .....

Name : .....

I Semester B.Sc. Degree (CCSS – Reg./Supple./Improv.) Examination, November 2015
(2014 Admn. Onwards)
COMPLEMENTARY COURSE IN STATISTICS FOR MATHEMATICS/ COMPUTER SCIENCE/ELE. CORE
1C01STA : Basic Statistics

Time : 3 Hours Max. Marks : 40

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

PART – A
(Short Answer)

Answer **all** the **6** questions : **(6×1=6)**

1. Define population and sample.
2. Distinguish between probability and judgment samples.
3. Define coefficient of variation.
4. Define β_1 and β_2.
5. Define Partial correlation.
6. Explain time reversal test.

PART – B
(Short essay)

Answer **any 6** questions : **(6×2=12)**

7. Explain the various methods of collecting primary data.
8. Describe principal steps in a sample survey.
9. Explain stratified random sampling.

P.T.O.

10. State the mathematical properties of arithmetic mean.

11. Define row and central moments. Obtain the relationship between them.

12. Prove that the value of the correlation coefficient lies between – 1 and 1.

13. State any two properties of the regression coefficients.

14. Explain the uses of index numbers.

PART – C

(Essay)

Answer **any 4** questions : **(4×3=12)**

15. Find the harmonic mean for the following data :

    3834, 382, 63, 8, 0.4, 0.03, 0.009, 0.005.

16. The mean and standard deviation of a set of 100 observations were worked out as 80 and 20 respectively by a computer which by mistake took the value 50 in place of 40 for one observation. Find the correct mean and variance.

17. Explain the least square method for fitting the line $y = a + bx$ to a given bivariate data.

18. In a trivariate population $r_{12} = 0.82$, $r_{13} = 0.78$, $r_{23} = 0.72$. Find $R_{1.23}$ and $r_{12.3}$.

19. Explain the components of time series.

20. Why is Fishers index number called the ideal index number ?

PART – D

(Long essay)

Answer **any 2** questions : **(2×5=10)**

21. Fit a curve of the form $y = ab^x$ for the following data :

X	2	3	4	5	6	7	8
Y	10	14	21	45	72	94	120

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

X	52	73	33	39	68	55	98	19	62	44
Y	51	42	21	41	48	39	91	36	75	33

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
Tourists arrivals (in millions)	18	20	23	25	34	28	30

24. Calculate the Fishers index number for the following data :

Commodity	1990		2000	
	Price	Quantity	Price	Quantity
A	16	40	30	40
B	20	60	25	50
C	8	120	15	120
D	4	100	5	100
E	12	50	10	60

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