



M 2524

Reg. No. : .....

Name : .....

I Semester B.A./B.Sc./B.Com./B.B.A./B.B.A.T.T.M./B.B.M./B.C.A./B.S.W./ B.A.  
Afsal UI Ulama Degree (CCSS – Reg./Supple./Improv.) Examination,  
November 2012

**COMPLEMENTARY COURSE IN STATISTICS**

**(for Maths./Comp.Sci. Core)**

**1C01 STA : Basic Statistics**

Time : 3 Hours

Total Weightage : 30

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

**PART – A**

Answer any 10 questions :

Weightage 1 each

1. Distinguish between primary and secondary data.
2. What is judgement sampling ?
3. Distinguish between simple random sampling with and without replacement.
4. Give the formula connecting mean, median and mode in the case of a moderately skewed distribution.
5. Define raw and central moments.
6. What is meant by the principle of least squares ?
7. Draw the scatter diagram and show +ve, -ve and no correlation.
8. What is multiple correlation ?

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9. What are the components of a time series ? Which component explain long term variation ?
10. What is meant by cost of living index number ? Give its use.
11. Define factor reversal test. (10×1=10)

PART – B

Answer any 6 questions :

Weightage : 2

12. How will you fit a curve of the form  $y = a e^{bx}$  ?
13. For set of 20 observations we have  $\sum x = 480$ ,  $\sum x^2 = 15750$ . Find the mean and S.D.of the sample. Also find the C.V.
14. Define mean deviation. Show that it is least when taken from the median.
15. Derive the expression for Spearman's rank correlation coefficient.
16. Show that  $r_{xy}^2 = b_{xy} \times b_{yx}$ .
17. If  $x_1$  and  $x_2$  are two observations on  $x$ , show that  $AM \geq GM \geq HM$  and  $AM \times HM = (G.M.)^2$ .
18. The first four moments about zero are 2, 6, 12 and 18 respectively. Find  $\beta_1$  and  $\beta_2$ .
19. Explain how you would estimate trend by the method of least squares.
20. Give the formula of Laspeyor's and Paache's index number. Do they have bias ? Explain. (6×2=12)



PART - C

Answer any 2 questions :

Weightage : 4

21. Compute the median, mode and quartiles for the following data :

<b>Age of women :</b>	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55	55 – 60
<b>No. of women :</b>	50	70	100	180	150	120	70	60

22. Two cricketers A and B scored the following runs in several innings. Find who is the better run getter and who is more consistent :

<b>A :</b>	42	17	83	59	72	76	64	45	40	32
<b>B :</b>	28	70	31	0	59	108	82	14	3	95

23. Ten competitors in a beauty contest are ranked by the judges in the following order :

<b>First judge</b>	:	1	5	4	8	9	6	10	7	3	2
<b>Second judge</b>	:	4	8	7	6	5	9	10	3	2	1
<b>Third judge</b>	:	6	7	8	1	5	10	9	2	3	4

Which pair of judges have the nearest approach to common taste of beauty ? Discuss using rank correlation coefficient.

24. What are moments ? Derive the expression for the  $r^{th}$  central moment and hence find the expression for  $\mu_2, \mu_3, \mu_4$  in terms of raw moments. Write the expression for  $\beta_1$  and  $\beta_2$ . (2x4=8)