Student's Roll No.		–			–			–				

1st SEMESTER EXAMINATION – BBA
NOV – DEC 2009

BUSINESS STATISTICS - I (HONOURS)

BSTA3101

Tuesday, December 15, 2009 09:30 am to 11:30 am

Time allowed: 2 hours

Full Marks: 50

Instructions:

- Use fountain pen or ball-point pen of blue or black ink.
- Answer in own words as far as practicable.
- Do not write anything on the Question paper other than Roll No.

ANSWER QUESTION NO. 1 AND ANY FOUR FROM THE REST

1. Answer ANY FIVE questions: (5 X 2 = 10)

   (a) Distinguish between primary and secondary data.

   (b) The A.M. of two observations is 25 and their H.M. is 9. Find their G.M.

   (c) Find the mean deviation about median of the numbers 1, 5, 8, 3, 2.

   (d) If $y = 5 - 2x$ and $\bar{x} = 10$ and $\sigma_x = 3$ find $\bar{y}$ and σ_y.

   (e) If $\sigma_y = 4,\ b_{yx} = 0.48,\ r = 0.6$ and σ_x.

   (f) If C.V = 60% and variance = 36, find mean.

   (g) If $y = 3x^2 - 4x + 1$, find $\Delta^3 y$.

   (h) If for a mesokurtic distribution 4th central moment is 243, find the standard deviation.

2. (a) Draw a Histogram to represent the following distribution:

Weight in Kg	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70
No. of students	500	700	300	400	100

(4)

   (b) The median and mode of the following distribution of 230 observations are 33.50 and 34 respectively. Find the missing frequencies.

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
Frequency	4	16	–	–	40	–	4

(6)

3. (a) Karl Pearson's co-efficient of skewness of a distribution is 0.4. Its standard deviation is 8 and mean is 30. Find median and mode of the distribution. (4)

   (b) For a set of 10 observations, the arithmetic mean and the co-efficient of variation (c.v.) are 40 and 40% respectively. If one observation equal to 50 is left out, what will be the value of A.M. and C.V. for the remaining 9 observations in the set. (6)

4. (a) Prove that Fisher's formula for index number satisfies factor reversal test. (4)

   (b) Find the co-efficient of correlation from the following data:

x	10	6	2	4	5	11	7	10
y	9	4	8	6	5	8	10	5

(6)

5. (a) Find x from the following data:

	Base Year		Current Year	
Commodities	Price (Rs.)	Quantity	Price (Rs.)	Quantity
A	1	10	2	5
B	1	5	x	2

Given that the ratio between Laspeyres' and Paasche's price index numbers is 28:27. (4)

(b) If log 1 = 0 , log 2 = 0.3010, log 3 = 0.4771 and log 4 = 0.6021. Calculate log 3.5 by using suitable interpolation formula. (6)

6. (a) Calculate the first three central moments and hence find the measure of skewness for the values 1, 3, 5 and 7. (4)

(b) Two lines of regression are given by $x + 2y = 5$ and $2x + 3y = 8$ and $\sigma_x^2 = 12$. Calculate the values of $\bar{x}$, $\bar{y}$, σ_y and r. (6)

7. (a) Prove that sum of the squares of deviation of all observations is minimum when the deviation is taken from their A.M. (4)

(b) Find the quartile deviation from the following distribution.

Class interval	60 – 62	63 – 65	66 – 68	69 – 71	72 – 74
Frequency	5	18	42	27	8

(6)

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