

UG-468

BMS-05

**B.Sc. DEGREE EXAMINATION
JANUARY 2009.**

(AY – 2005-06 and CY – 2006 batches only)

Second Year

Mathematics

STATISTICS

Time : 3 hours

Maximum marks : 75

SECTION A — (5 × 5 = 25 marks)

Answer any FIVE questions.

1. Compute the value of Geometric mean :

Marks : 10 20 25 40 50

Frequency : 20 30 50 15 5

2. Compute coefficient of correlation for the following data :

A 9 8 7 6 5 4 3 2 1

B 15 16 14 13 11 12 10 8 9

3. Obtain first 4 moments about mean for the following data :

X: 2 3 4 5 6

f: 1 3 7 3 1

4. Construct index numbers of Price from the following data :

Commodity	2006		2007	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

5. One card is drawn from a standard pack of 52. What is the probability that it is either a king or a queen?

6. For the Binomial distribution the mean is 6 and S.D. is $\sqrt{2}$. Obtain n , p and q .

7. A man buys 50 electric bulbs of 'Philips' and 50 electric bulbs of 'HMT'. He finds that 'Philips' bulbs give an average life of 1,500 hours with a standard deviation of 60 hours and 'HMT' bulbs gave an average life of 1,512 hours with a standard deviation of 80 hours. Is there a significant difference in the main life of the two makes of bulbs?

8. In a sample of 8 observations, the sum of squared deviations of items from the mean was 84.4. In another sample of 10 observations, the value was found to be 102.6. Test whether the difference is significant at 5% level.

SECTION B — (5 × 10 = 50 marks)

Answer any FIVE questions.

9. Calculate quartile deviation and the coefficient of quartile deviation from the following data :

Wages in

Rupees Per week : less than 35 35–37 38–40 41–43 Over 43

Number of

wage earners : 14 62 99 18 7

10. Calculate coefficient of skewness :

X: 12.5 17.5 22.5 27.5 32.5 37.5 42.5 47.5

f: 28 42 54 108 129 61 45 33

11. From the following data obtain the two regression equations :

X: 1 2 3 4 5 6 7 8 9

Y: 9 8 10 12 11 13 14 16 15

12. Using Newton's formula find the annual premium at the age of 33 from the following data :

Age in years : 24 28 32 36 40

Annual premium

in Rs : 28.06 30.19 32.75 34.94 40

13. From the following data compute price index by supplying weighted average of price method using arithmetic mean

Commodity	P_0 (Rs.)	Q_0	P_1 (Rs.)
sugar	3.0	20 kg	4.0
flour	1.5	40 kg	1.6
milk	1.0	10 lt.	1.5

14. A box contains 3 red and 7 white balls. One ball is drawn at random and in its place a ball of the other colour is put in the box. Now one ball is drawn at random from the box. Find the probability that it is red.

15. Assume the mean height of solidiers to be 68.22 inches with a variance of 10.8 inches. How many solidiers in a regiment of 1000 would you expect to be over six feet tall?

16. In an experiment on immunization of cattle from tuberculosis, the following results were obtained

	Affected	Not affected
Inoculated	12	26
Not inoculated	16	6

Calculate χ^2 and discuss the effect of vaccine in controlling susceptibility to tuberculosis.