Roll No. _____

MS-3203

B.M.S. (Semester-II) Examination, 2015

STATISTICAL METHODS

(BMS-201)

Time Allowed : Three Hours]   [Maximum Marks : 70

Note :   Question No. 1 is compulsory and carries 30 marks. Also attempt one question from each Unit that are of 10 marks each. Use of simple calculator is allowed.

1.   Answer the following questions in short :

$$3 \times 10 = 30$$

(a)   What are the characteristics that statistics should possess?

(b)   Find the range and the coefficient of range for the following observations.

65, 70, 82, 59, 81, 76, 57

(c)   The Coefficient of variation of a distribution is 60% and its standard deviation is 12. Find out its mean.

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(4)

methods of random sampling.   10

7.   What is a statistical error? Distinguish between sampling and non-sampling errors. Briefly discuss the various measures of statistical errors.   10

Unit-IV

8.   The 9 items of a sample have the following values :

45, 47, 50, 52, 48, 47, 49, 53, 51

Does the mean of these values differ significantly from the assumed mean 47.5?

(for $v = 8$, $t_{0.05} = 2.31$)

9.   From the following table regarding the colour of eyes of fathers and sons test if the colour of son's eye is associated with that of the father :   10

Eye colour of father	Eye Colour of son		
	Light	Not light	Total
Light	471	51	522
Not light	148	230	378
Total	619	281	900

(Given : for $V=1$, $\chi^2_{0.05} = 3.84$)

(d) What are the properties of the coefficient of correlation and regression?

(e) What are dependent and independent events? Discuss with examples.

(f) What are the rules of addition and multi-plication theorem of probability?

(g) What do you understand by conditional probability?

(h) What is a hypothesis?

(i) Explain type I and type II errors?

(j) Distinguish between symmetrical and asymmetrical distribution.

Unit-I

2. Compute Mean, Median and Mode from the following data : 10

Marks :	0–10	10–20	20–30	30–40	40–50
No. of Students :	7	6	15	12	10

3. The following data are given regarding ex-penditure on advertising and sales of a par-ticular firm :

	Adv. Exp. (Rs. in crores)	Sales (Rs. in crores)
Mean	20	120
S.D.	5	25

Coefficient of correlation = 0.8

(a) Compute the two regression equations

(b) Find the likely sales when advertisement expenditure is Rs. 25 crores.

Unit - II

4. Explain the following concept of probability : 10

(a) Classical approach

(b) Relative frequency or empirical approach

(c) Axiomatic approach.

5. (a) An urn contains 8 white and 3 red balls. If two balls are drawn at random, find the probability that : 5+5

   (i) Both are white.

   (ii) Both are red.

(b) A card is drawn from a well shuffled pack of playing cards. Find the probability that (i) it is either a diamond or a king (ii) it is either a red colour card or an ace.

Unit-III

6. What is Sampling? What are the essentials of a good sample? Briefly discuss the various