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Total No. of Questions: [09]

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B.Sc. Agriculture (Semester – 2nd)
BASIC STATISTICS
Subject Code: BMAT0204
Paper ID: [1301181]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

- a) What do you mean by Weighted Mean, explain with an example
- b) Obtain the median for the following frequency distribution:

x	1	2	3	4	5	6	7	8	9
f	8	10	11	16	20	25	15	9	6

- c) Explain Normal Distribution and its Properties.
- d) Explain Yates Correction for Continuity.
- e) Discuss interrelation between Correlation and Regression Coefficients.
- f) Write down the general equation of the normal distribution
- g) Discuss Factorial Design
- h) Explain F-test.
- i) A sample of 20 items has mean 42 units and standard deviation 5 units. Test the hypothesis that it is a random sample from a normal population with mean 45 units.
- j) Prove that standard deviation is the least possible root-mean square deviation.

Section – B **(5 marks each)**

Q2. A student obtained the mean and standard deviation of 100 observations as 40 and 5 respectively. It was later discovered that he had wrongly copied down an observation as 50 instead of 40. Calculate the correct mean and standard deviation.

Q3. Calculate the coefficient of correlation for the following ages of husbands and wives.

Husband's age (x)	23	27	28	28	29	30	31	33	35	36
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Wife's age (y)	18	20	22	27	21	29	27	29	28	29
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Q4. A bag contains defective articles, the exact number of which is not known. A sample of 100 from the bag gives 10 defective articles. Find the limits for the proportion of defective articles in the bag.

Q5. The nine 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.

Q6. Explain Layout and Analysis of Completely Randomized Design.

Section – C **(10 marks each)**

Q7. Explain normal distributions and its basic properties. In a normal distribution, 31% of the items are under 45 and 8% are over 64. Find the mean and standard deviation of the distribution.

Q8. Explain:

- i) Explain Randomized block design
- ii) Explain Coefficient of Variation with an example

Q9. Can vaccination be regarded as preventive measure of COVID-19 as evidenced by the following data of 1482 persons exposed to COVID-19 in a locality. 368 in all were attacked of these 1482 persons and 343 were vaccinated and of these only 35 were attacked.