Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐   **Total No. of Pages : 02**

Total No. of Questions : 09

B.Sc.(Agriculture) (2014 & Onwards)   (Sem.–4)
BASIC STATISTICS
Subject Code : BSAG-409
Paper ID : [72761]

Time : 3 Hrs.   **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :
1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. **Write briefly :**
   a. Formation of frequency distribution
   b. Census and sampling
   c. Use of mean deviation
   d. Applications of chi-test
   e. Calculate geometric mean for the following data:

125	1462	38	7	0.22	0.08	12.75	0.5

   f. Yates correction for continuity in Chi-test
   g. Types of correlation
   h. Assumptions in F-test
   i. Applications of t-test
   j. Factorial design

SECTION-B

2. For a random sample of size 10 from a normal population, the mean is 12.1 and the standard deviation is 3.2. is it reasonable to suppose that the population mean is 14.5? Test at 5% significance level. (Clearly state the null and alternative hypothesis and assumptions. Given that $t_{0.025}$ at 9 d.f. = 2.262; $t_{0.05}$ at 9 d.f. = 1.833).

3. Distinguish between regression and correlation analysis. What are the areas of application of regression? Explain with example how regression lines can be used for decision making?

4. What is meant by sampling? Enumerate various techniques of sampling and describe any three sampling techniques.

5. Find the standard deviation from the following data:

Age under	10	20	30	40	50	60	70	80
No. of persons dying	15	30	53	75	100	110	115	125

6. Explain with suitable examples various approaches to probability.

SECTION-C

7. Five varieties of wheat A, B, C, D and E were tried. The gross size of the plot was 18 feet × 110 feet, the net plot being 14 feet × 18 feet. This whole experiment occupied an area of 90 feet × 110 feet. The plan, the varieties shown in each plot and yields obtained in kg. are given in the table below :

B	E	C	A	D
90	80	134	112	92
E	D	B	C	A
85	84	70	141	82
C	A	D	B	E
110	90	87	84	69
A	C	E	D	B
81	125	85	76	72
D	B	A	E	C
82	60	94	85	88

    Carry out an analysis of variance. What inference can you draw from the data given?

8. Estimate using regression equations (a) the sales for advertising expenditure of Rs. 100 lakhs and (b) the advertisement expenditure for sales of Rs. 47 crores from the given data:

Sales (Rs. crores)	14	16	18	20	24	30	32
Adv. Exp. (Rs. lakhs)	52	62	65	70	76	80	78

9. What is normal distribution? Discuss its properties in detail. Also bring about its applications and importance in statistics.