

**B.Sc. (Ag.) Honours Semester-V Examination, 2016**  
**Course No.: AST-311 : (Statistics)**

Signature of Centre Superintendent

Roll No.: (in figure) _____ (in words) _____
Student Index No. _____ Regn. No. _____ of _____

**Time: Two Hours**

**Full Marks: 40**

*Questions are of value as indicated in the margin*

**Part-I**  
**(Objective and Short Answer Type)**  
**(Use only ball point pen)**

**Time: 20 minutes**

**FullMarks: 10**

*Note: 1. Answer in question paper itself.*

*2. Striking, rewriting or overwriting are not allowed in the objective type questions.*

**1. State True (T) or False (F) in respect the following statements :**

**0.5×10=5.0**

- (a) Mean-Mode = 3 (Mean-Median).
- (b) The critical region is the region of rejection.
- (c) When all observations are same its variance will be zero.
- (d) Correlation coefficient lies between -1 to +1.
- (e) The Geometric mean of 2,4,7,0,8 is 5.
- (f) To calculate the median you first need to organize your data in increasing order.
- (g) Two events A and B are independent if  $P(A \cap B) \neq 0$ .
- (h) Population is representative of sample.
- (i) In Poisson distribution mean is greater than the variance.
- (j) There is no unit of Karl Pearson correlation coefficient.

**2. Fill up the following blanks :**

**1×5=5.0**

- (a) Collection of information is called .....
- (b) If 3 is standard deviation, then variance is.....
- (c) Probability can never be less than.....
- (d) For comparison of two series, the best measure of dispersion is.....
- (e) Student's t-test was invented by.....

**B.Sc. (Ag.) Honours Examination, 2016**

**Semester-V**

**Course No.: AST-311**

**(Statistics)**

**Part - II**

**( Descriptive Type )**

**Time: 100 Minutes**

**Full Marks: 30**

*Questions are of value as indicated in the margin*

**Answer any three questions from the following:**

3. The following table gives the rainfall (in inches) of a city for last 25 years 5+5=10  
45,41,39,38,39,38,44,46,49,45,46,41,41,42,43,46,47,51,46,47,43,57,62,39,52  
a) Prepare a frequency distribution table with appropriate class intervals.  
b) Find the measure of centre of the prepared frequency distribution table.

4. Define a random variable. Let  $X$  be a random variable having probability mass function  $p(x) = P(X = x)$  as follows 5+5=10

x :	0	1	2	3
p(x) :	K	0.4	3k	0.2

- a) Find the value of k.  
b) Find  $E(X)$  and  $Var(X)$

**Or**

- a) The probability of a plant to flower is 0.9. What is the probability that in a group of 5 plants at least two of them will have flower?  
b) The probability of a good harvest is 0.3 if it rains in the week before the harvest and is 0.7 if it does not. Given that the probability of rain in the previous week is 0.2, what is the probability that the harvest will be good? 5+5=10

5. What do you understand by test of significance? Discuss under what situation paired t-test is used and also state the test procedure in brief. Give an example where paired t-test can be applied. 4+6=10

6. The equations of two regression lines obtained in a correlation analysis study are as follows:  
 $3x + 12y - 19 = 0$  and  $3y + 9x - 46 = 0$  5+2+3=10

- a) Identify the regression lines of x on y and y on x.  
b) Find the value of correlation coefficient.  
c) Find mean values of x and y.

7. Define a completely randomized design (CRD). Give the layout and analysis of CRD. 4+6=10

8. Write short notes on **any two** of the following: 2×5=10

- (a) Relative measures of dispersion  
(b) Binomial distribution  
(c) Spearman's rank correlation coefficient  
(d) Simple Random Sampling