

Agriculture and Forestry University
Faculty of Agriculture,
Rampur, Chitwan, Nepal

Internal Assessment, 2080

Subject: AST 201 Agricultural Statistics 3 (2+1)

Level : B. Sc. Ag. 2nd semester, 2nd year

F.M. : 10

P. M. : 04

Time: 90 minutes

Attempt all questions. Candidates are required to give their answer in their own words as far as practicable.

1. What are agricultural statistics? What are the methods of data collection? How do you estimate the precision of statistics? Why random choice method is preferable in data collection from a portion of population? (0.25+0.25+0.25+0.25)
2. Why are data represented in diagrams and graphs? Briefly describes about the kinds of pictograms. Compute the combine mean and standard deviation from the given data series: (0.25+0.25+0.25+0.5)
Series A: ~~5, 14, 11, 18, 23, 7, 12, 19, 7~~
Series B: ~~10, 20, 19, 13, 18, 12, 17, 9, 14, 18, 16~~
3. What is frequency curve? Karl Pearson's coefficient of skewness is 1.28, its mean is 164 and mode 100, find the standard deviation. (0.25+0.5)
4. Explain followings: (0.2 x 5 = 1)
 - a. Relative and Absolute measures of dispersion
 - b. Correlation and regression coefficient
 - c. Experiment, outcomes, and exhaustive events
 - d. Stratified and systematic sampling
 - e. Application of geometric and harmonic means
5. a. A number is selected from the first 40 natural numbers. What is the probability that it would be divisible by 3 or 5? (0.25)
b. What is the probability of getting 53 Tuesday when a leap year selected at random? (0.25)
c. A product is assembled from the three components X, Y and Z. The probability of these components being defective is respectively, 0.01, 0.02 and 0.05. What is the probability that the assembled product will (a) be defective (b) not be defective? (0.5+ 0.25)
6. what are Binomial, Poisson and Normal distribution? The weight of a fruit from a large firm is 75 g on an average with a standard deviation of 1.62 gram. If these weights are normally distributed, what percent of these fruit would be expected to weigh between 60 gram and 87 g? (0.75+0.5)
7. What are decision errors? The average yield of rice in Nawalparasi is 3.5 t/ha with standard deviation of 0.3 t/ha whereas the that of Kapilvastu is 4.0 t/ha with standard deviation of 0.45 t/ha. A researcher conducts the sample survey to check yield of rice. The average mean yield of rice from 35 farmers of the Nawalparasi is 3.5 t/ha with standard deviation of 0.6 t/ha whereas the mean yield from 40 farmers of the Kapilvastu District is 4.2 t/ha with standard deviation of 0.65 t/ha. Test whether the yield of kapilvastu is higher than the Nawalparasi or not. (0.5+0.75)

8. With the help of following given data of rice, (i) compute simple linear correlation coefficient (r) (ii) compute coefficient of determination and alienation (iii) interpret the results. (0.75+0.25+0.25)

Obs.	Number of grains/plant (X)	Grain yield, Kg/plant (g) (Y)	Where,
1	44	60	Mean X = 82
2	96	112	Mean Y = 97
3	190	210	Sum of square of deviate ($\sum x^2$) = 26,889
4	151	116	Sum of square of deviate ($\sum y^2$) = 19,967
5	46	70	Product of deviate ($\sum xy$) = 21,819
6	44	80	
7	4	32	

9. What is exact mean test? An agricultural researcher wants to investigate whether a new irrigation method has a significant effect on the average crop yield per field. The researcher collected yield data from a random sample of 20 fields using the new irrigation method. The average crop yield for the sample was 8.7 t/ha with a standard deviation of 0.5 t/ha. The historical average yield for the traditional irrigation method is 6.9 t/ha. (0.25+0.75)

critical value is 1.96.

Good Luck!!!