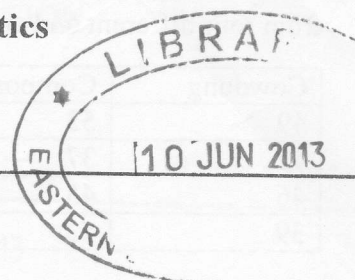


Eastern University, Sri Lanka

Second year First Semester Examination in Agriculture 2010/2011

CS 2102 Introductory Statistics



Time: 2 hours

Answer all questions

1. Weights of 30 capsicum pods (g) are given below.

46, 50, 52, 52, 52, 54, 54, 56, 56, 57, 58, 58, 59, 60, 60, 60, 61, 62, 63, 63, 63, 63, 64, 65, 66, 67, 67, 68, 70, 76

- A. (1) Find the range, mean, median and mode of the pod weight (g).
- (2) Compute the inter quartile range.
- (3) Identify the outliers.

B. Use the above data set

- (1) Construct the stem and leaf plot for the above data
- (2) Construct the frequency distribution for this data.  
(Assume classes:  $50 \leq X < 55$ ,  $55 \leq X < 60$ ,  $60 \leq X < 65$ ,  $65 \leq X < 70$ ,  $75 \leq X < 80$ ).
- (3) Construct the relative frequency distribution for this data.
- (4) Draw a histogram.
- (5) What the advantages of stem and leaf plot compared to the histogram for illustrating data.

2. A) A sample of 400 students taking a nationwide entrance exam in IQ revealed an average mark of 560 and sample standard deviation of 100. What is the 99% confidence interval for the population mean?

B) A sample of 400 seedling plants growing in a nursery, is classified for vigour and for leaf colour; the results being summarized in the following table.

	Vigour -good	Vigour - average	Vigour - weak	Total
Green	50	54	41	145
Yellow	38	46	48	132
Pale yellow	22	30	31	83
Brown	10	10	20	40
Total	120	140	140	

- (1) Write the null hypothesis and alternative hypothesis
- (2) Find the expected frequency for each cell.
- (3) Compute the  $\chi^2$  statistics.
- (4) Interpret the results at  $\alpha = 5\%$ .

3. A) Write the assumptions of ANOVA.

B) An agricultural researcher tests the effects of three different fertilizers on wheat yields in four different and equal plot of lands are given below.

Cowdung	Compost	Urea
49	53	50
42	37	39
46	45	49
39	53	46

- (1) State the null hypothesis and alternating hypothesis.
- (2) Construct the ANOVA table.
- (3) Interpret the results.

4. A researcher wants to find out whether there is a relationship between the age and blood pressure. He took a random sample of 10 women and their blood pressure are given below.

Age (X)	Blood pressure (Y)
56	147
42	125
36	118
47	128
49	145
42	140
72	155
63	160
55	149
60	150

- (1) Draw a scatted diagram.
- (2) Find the correlation coefficient between X and Y.
- (3) Determine the regression line of Y on X.
- (4) Estimate the blood pressure of a women whose age is 45.