

# Eastern University Sri Lanka

Second Year First Semester Examination in Agriculture 2008 / 2009

(April / May 2010)

CSC 2103 Introductory Statistics

Answer all questions.

Time : 2 hours



01. The following table is a frequency table gives the measurement of height of seedlings in a nursery.

Height (cm )	Number of seedling
04 - 08	02
09 - 13	05
14 - 18	07
19 - 23	13
24 - 28	10
29 - 33	02
34 - 38	01

- Construct a histogram to demonstrate the distribution of height of seedlings.
- Calculate the mean, standard deviation and variance.
- Construct a relative frequency polygon.

02. a) Define the term probability?

b) A marble is drawn at random from a box containing 8 red marbles, 4 blue marbles and 6 yellow marbles. Determine the probability that is

I. Red

II. Blue

III. Red or yellow

IV. Not yellow

c) Write notes on the following

I. Chi- square Test

II. Law of product probability

03. An experiment was conducted to compare yield performance of six rice varieties. The following table shows the yield of each variety recorded in a complete random manner.

Variety	Yield (ton / ha)			
	R <sub>1</sub>	R <sub>2</sub>	R <sub>3</sub>	R <sub>4</sub>
A	4.5	5.0	4.9	5.0
B	2.0	1.9	1.8	2.1
C	4.7	4.6	4.1	5.0
D	3.0	2.9	2.8	2.8
E	3.1	3.7	3.7	3.6
F	4.2	4.5	3.9	4.1

a) Determine the sample mean of each variety.

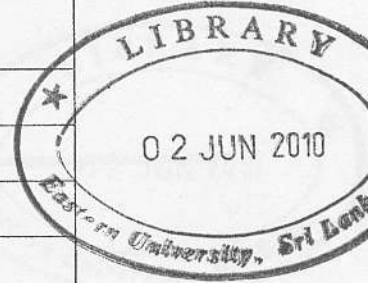
b) Develop ANOVA table for this experiment.

c) Interpret your results statistically at 5% significant level.

d) Calculate Co-efficient of variation.

04. In an investigation of growth regulator influence on the performance of crop, the height of straw (Y) for the corresponding application rate of growth regulator (X) was measured. The data were as follow

Application rate (mg/L) (X)	Height of straw(cm) (Y)
2	105
4	106
6	101
8	97
10	95
12	90
14	85
16	87



$$\sum x = 72$$

$$\sum y = 766$$

$$\sum x^2 = 816$$

$$\sum y^2 = 73790$$

- Draw a scatter diagram for the above data.
- Fit the regression line on your graph.
- Test the significance of the simple linear regression at  $p = 0.05$ .

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