Eastern University, Sri Lanka

Second Year First Semester Examination in Agriculture 2007/2008

CSC 2103 Introductory Statistics

Answer the all questions

Time: Two hours

1.

    a) Define the term contingency table.

    b) Following table shows a random sample of leaves classified by rust infestation and field.

Contingency table for rust infestation and field

| Field	Rust	Non rust
A	372	24
B	330	48

Find the expected frequencies.

Does the rust infestation vary between fields?

2. An experiment was conducted to compare five rice varieties A, B, C, D and E. The yield was recorded as follows in a completely random design.

		Yield(Kg)		
Variety	R1	R2	R3	R4
A	5	4	4	4
B	3	3	4	3.5
C	6	6.5	7	6
D	8	7	7	7
E	4	4.5	5	4

    a) State the null hypothesis and alternate hypothesis for the above experiment.

    b) Construct the ANOVA table for this experiment.

    c) Interpret your result at P=0.05.
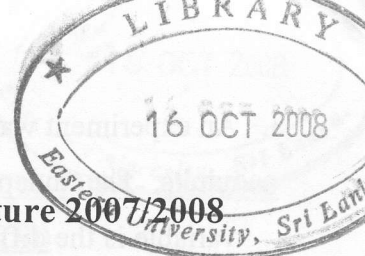
3. An experiment was conducted to study the effect of a certain drug in lowering heart rate in adults. The independent variable is dosage in milligrams of the drug; the dependent variable is the difference between the lowest rate following administration of the drug and a pre drug control. The following data were collected.

X- Dosage (mg)	Y-Reduction in heart rate (beats min^{-1})
0.5	10
0.75	8
1.0	12
1.25	12
1.5	14
1.75	12
2.0	16
2.25	18
2.5	17
2.75	20
3.0	18
3.25	20
3.5	21

a) Fit the regression line.
b) Calculate the correlation coefficient and comment on the relationship.
c) Test the significance of the regression coefficient.

4. Height of trees which are grown in different locations is given below.

Location	Tree height(m)					
Wood	8	9.5	7.5	10	8.5	11
Solitary	7	8	7.5	8	7.5	6

a) Is there significant difference in tree height grown in two different locations?
b) Interpret your result at P=0.05.