EASTERN UNIVERSITY
FACULTY OF AGRICULTURE
SECOND YEAR FIRST SEMESTER EXAMINATION 2000/2001
INTRODUCTORY STATISTICS (CSC 2103)

ANSWER ALL QUESTIONS
TIME ALLOWED: 2 HOURS

1. Five traps were set in a rice field at different locations. The number of mice captured in each trap during a period of one month is shown in Table 1. One trap (B) caught fewer mice than the others. Using a suitable statistical test, check whether the trap B differs significantly from the other traps in trapping mice.

Table 1

Traps	A	B	C	D	E
Number of mice caught	23	7	25	19	21

2. An experiment was conducted to evaluate yield performance of six rice varieties along with a control variety, BG 94-1 in a randomized complete block design with four replicates. The results are shown in Table 2.

Table 2

Yield (Metric -tons)/Hectare

Variety	R1	R2	R3	R4
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
BG94-1	3.0	3.1	2.9	3.0

$\sum x = 99.9$ $\sum x^2 = 383.55$

a. Determine the sample mean for each variety.
b. Develop an ANOVA table for this experiment
c. Compare the mean yield of varieties with the standard variety, using Least Significant Difference test as a tool.

3. The results below show the density of two weed species A and B in a given area. Measurements were taken by a quadrant measuring 0.5 m X 0.5m. The quadrant is thrown for 30 times and the number of weed species trapped in each occasion is listed below. The total area of the lawn is **one hectare.**

Species A

9	8	7	6	7	8	9	9	3	9
0	0	2	6	14	5	8	19	0	7
18	3	9	2	1	1	16	13	8	11

Species B

5	4	0	1	0	2	16	6	0	7
3	1	0	0	11	0	2	3	19	14
0	3	0	0	1	4	6	8	13	0

a) Propose a null hypothesis to the experiment above.
b) Calculate mean, standard deviation, standard error for population A and B.
c) Compare the means of the populations A and B and comment on the results.
d) Calculate the estimated number of weed species of A and B in the lawn.

4. The relationship between weight gain and temperature was determined for an insect.

Temp °C	6	8	10	12	14	16	18	20	22	24	26	28
Weight in mg	10	10	9	5	7	4	1	2	1	2	1	0

$\sum x = 204$ $\sum y = 52$ $\sum xy = 606$ $\sum x^2 = 4040$ $\sum y^2 = 382$

(i) Indicate the dependent and Independent variables.
(ii) Draw A Scatter Diagram
(iii) Calculate the coefficient of correlation and test its significance.
(iv) Fit a regression line to the above data
(v) Predict the weight gain at 19^0C
(vi) Comment on the relationship