

Eastern University, Sri Lanka

Second Year First Semester Examination in Agriculture 2013/2014 (January 2016)

CS 2102 : Introductory Statistics

Time : 2 hours

Answer all questions

- 1) The following data represent the fresh weight of tomato fruits (g) in a farmer's field:
83, 85, 76, 73, 75, 76, 84, 69, 70, 78, 55, 79, 76, 68, 63
- Find the mean, median, mode and range.
 - Compute the variance and standard deviation.
 - Compute inter quartile range.
 - Draw Box-Wisker plot.
 - Identify the outliers.
- 2) Random sample of 150 students from 1st year, 160 students from 2nd year and 140 students from 3rd year were asked as to what type of programme on television they prefer to watch. Results being summarized in the following table.

Programme type	Students number		
	1 st year	2 nd year	3 rd year
Drama	32	55	30
Music	44	40	40
Comedy	46	30	45
Sports	28	35	25

- Write the hypothesis and null hypothesis for the above mentioned study.
- Find the expected frequency for each cell.
- Compute the chi square statistics.
- Is it significant at $\alpha = 5\%$.

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- 3) A researcher wants to study the effect of three different fertilizers (cattle manure, poultry manure, green manure and compost) on brinjal height in green house. Recorded plant heights (cm) are given below:

Cattle manure	Poultry manure	Green manure	Compost
21	20	23	23
23	19	21	22
20	19	23	24
15	18	24	25

- a) Write the assumptions of ANOVA.
 b) State the null and alternative hypothesis for the above experiment.
 c) Construct the ANOVA table.
 d) Interpret the results at 5% significant level.
- 4) a) Serum protein was taken from ten male patients for medical experiment. Recorded data are given below.
 7.23, 6.97, 6.86, 7.41, 7.30, 7.19, 7.00, 7.11, 7.35, 7.22.
 Test at 5% level of significance that the populations mean of serum protein is 7.
- b) Briefly describe the advantages and disadvantages of simple random sampling and stratified random sampling.
- c) A study of 66,831 dairy cows found that the mean milk yield was 12.5 kg per milking with a standard deviation of 4.3 kg per milking. Construct a 95 % confidence interval for the average milk yield in the population.