EASTERN UNIVERSITY, SRI LNAKA
SECOND YEAR IN SCIENCE – 2016/2017 (Jan 2019)
ZL 251 - PRINCIPLES OF ECOLOGY
PRACTICAL EXAMINATION

Answer all questions **Time: 3 Hours**

1.

A. The length of the 50 diatoms (**µm**) were taken during survey are given below

15.0	14.5	14.0	13.7	15.4	12.5	13.7	15.4	14.6	15.6
14.3	15.8	16.3	15.2	13.0	14.0	16.0	11.9	13.5	11.8
13.5	14.8	14.8	12.5	13.5	12.5	14.7	16.7	14.4	15.7
16.4	12.5	14.2	15.6	14.4	13.8	16.5	14.3	14.0	15.0
19.7	12.8	11.4	15.7	17.4	10.2	14.7	14.6	12.4	14.7

(**Note**: Take number of classes as 7)

(a). Re-arrange the data in **Rank Order**?

(b). Calculate the **minimum class interval**?

(c). Determine the **Range** of the data?

(d). Determine the **Mean, Median, Mode and Standard Deviation**?

(e). How would you report the mean with a measure of **Variability**?

(f). Show the **frequency distribution** by the **Histogram & Polygon** on the same graph?

(25 Marks)

B. A doctor believes that the proportions of births in Sri Lanka on each day of the week are equal. A Simple Random Sample (SRS) of 700 births from a recent year (2016) is selected, and the results are below. At a significance level of 1%, is there enough evidence to support the doctor's claim?

Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Frequency	65	103	114	116	115	112	75

(a). Define the "Simple Random Sampling"?

(b). State one advantage and disadvantage of Simple Random Sampling over other sampling methods?

(c). If the researcher want to check gender along with proportions of births on each day of the week are equal, suggest the suitable sampling method?

(d). Derive the Null hypothesis and alternate hypothesis?

(e). Calculate the expected frequency?

(f). Set up a table to keep track of the calculations?

(g). Compute the Chi-squared value

(h). Calculate the degree of freedom?

(i). Derive the conclusion based on your hypothesis you made already?

(20 Marks)

2. Identify **A, B, C, D** and **E** and comment on ecological significance

(10 Marks)

3. Measure the salinity ecosystem **F, G** and comment the status.

(10 Marks)

4. Identify and comment the ecological issues of **H, I, J, K,** and **L**

(10 Marks)

5. Comment on the model **M** provided to you based on an ecosystem and state the problems existing and how you could restore the ecosystem in an environmental prospective.

(25 Marks)

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