



EASTERN UNIVERSITY, SRI LANKA  
DEPARTMENT OF MATHEMATICS  
EXTERNAL DEGREE EXAMINATION IN SCIENCE – 2010 / 2011  
FIRST YEAR SECOND SEMESTER (March / May, 2017)  
EXTCC 153 – BIO STATISTICS (PRACTICAL)  
(SPECIAL REPEAT)

Answer **all** questions.

Time: **Two** hours.

01. A group of students has collected the following data from 30 plants to understand the life time (in days) of a newly introduced variety of ladyfingers.

45, 40, 42, 50, 51, 37, 30, 61, 62, 32, 30, 28, 19, 35, 70, 71, 32, 12, 48, 46, 43, 50, 45, 40, 25, 46, 12, 72, 24, 42

- (a) Draw a histogram for the above data by taking intervals of size 10:  
(i.e. 0.5-10.5, 10.5-20.5, ...)
- (b) Draw a pie chart for these data by taking the interval in (a) as the categories.
- (c) Find the mean, median, and mode of life time based on the histogram in (a).

(25 Marks)

02. Data given in following table have been collected by a student to understand how average height (in inches) of children varies with their age (in years).

Age ( $X$ )	3	4	5	6	7	8	9	10	11	12
Average Height ( $Y$ )	48	49	51	53	55	58	60	62	64	65

- (a) Draw a scatter plot for above data.
- (b) Explain how age change with time by using the above plot.
- (c) Fit a regression model of the form,  $Y = \beta_0 + \beta_1 X$ , for the above data.
- (d) Find the average height of a child of age of 15 years.

(25 Marks)

03. Probability of no of successes( $X$ ) in a particular scenario can be found by using the following probability mass function having the mean  $\lambda = 5$ ;

$$P(X = x) = \frac{e^{-\lambda} \lambda^x}{x!}, \quad x = 0, 1, 2, \dots, \quad \lambda > 0.$$

Find the probability that there will be:

- (a) no success;
- (b) maximum 2 successes;
- (c) minimum 3 successes;
- (d) 2 to 3 successes.

(25 Marks)

04. A die is tossed 6 times. What is the probability of

- (i) no fives turning up?
- (ii) one five?
- (iii) three fives?
- (iv) five fives?

(25 Marks)