

The Open University of Sri Lanka

Bachelor of Medical Laboratory Sciences (B.MLS)

MLU3141- Application of Medical Statistics

Semester 02- Academic year 2015/2016

No Book Test 02

Return your question paper with the answer sheet



Date: 20.05.2016	Duration – 1 ½ hours
Time: 10.00 a m - 11.30 a m	Registration No.....

There are **three (03)** questions. Answer all questions in given papers. Statistical tables are provided.

1. The age measures given in Table is from a breast cancer study.

Variable	Breast cancer group (n = 100)	Control group (n = 225)
Age	61.5 (10)	51.0(7.5)

1.1 Calculate the standard error and the 95% confidence intervals for mean age of the cases.

(12

marks)

1.2 Calculate the standard error and the 95% confidence intervals for mean age of the controls.

(12 marks)

1.3 Interpret the confidence intervals.

(06 marks)

2. Write the alternative and null hypotheses for below research questions

(10 marks).

2.1.

- a) Is Malathion a more effective drug for treating head lice than *d*-phenothrin?
- b) Is stress a risk factor for breast cancer?

2.2. In Sri Lanka, the mean birth weight of infant population is 3700 g. The mean birth weight of a sample of 36 infants born at home in a rural area is 3600 g with a standard deviation of 300g. A researcher need to calculate whether the mean birth weight of infants born at home is significantly difference from the population mean.

- a) State the hypothesis. (5 marks)
- b) Calculate the test statistics. (10 marks)
- c) Decide on the significance level. (10 marks)
- d) Interpret the results using the decision rule ($p < 0.05$) (05 marks)

3. A bank manger wants to test whether the average monthly income of 25 depositors who obtained a loan is significantly different from 25 depositors who have not obtained a loan. The average monthly income of depositors who obtained a loan is Rs. 44,000.00 with a standard deviation of Rs. 7,500.00. The average monthly income of depositors who have not obtained a loan is Rs. 45,000.00 with a standard deviation of Rs.10,000.00.

- 3.1. State the hypothesis. (05 marks)
- 3.2. Calculate the standard error of difference between two sample means.(10 marks)
- 3.3. Calculate the t value. (10 marks)
- 3.4. Interpret the results at 0.05 significance level. (05 marks)

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