

Master Copy

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MSc BIOMEDICAL INFORMATICS SEMESTER II - JULY 2016**

Date : 18<sup>th</sup> July 2016

Time: 10.30 a.m. - 12.00 p.m.

**SEQ PAPER**

Answer all questions.

Answer each part in a separate book.

**Question 1**

**Part A**

1.1

1.1.1 List the essential features of a biological database. (20 marks)

1.1.2 Briefly describe two different organizational structures found in commonly used biological databases. (50 marks)

1.1.3 Name a biological database to perform each of the following (30 marks)

i. Find disease associations of a given gene.

ii. Find genetic polymorphisms associated with a disease condition.

iii. Find the clinical significance of a Single Nucleotide Polymorphism (SNP).

**Part B**

1.2 Write short notes on

1.2.1 Applications of Next Generation Sequencing (NGS) technologies. (50marks)

1.2.2 Basic Local Alignment Search Tool (BLAST). (50 marks)

**Part C**

1.3

1.3.1 List the four stages of public health evaluation. (40 marks)

1.3.2 Briefly discuss two (02) of the stages listed in 1.3.1 above. (60 marks)

**Question 2**

**Part D**

2.1

2.1.1 List four (04) types of changes that have to be considered when implementing public health information projects. (50 marks)

2.1.2 Briefly describe two (02) of the changes listed in 2.1.1 above. (50 marks)

**Part E**

2.2

Given below is the summary of the marks obtained in two classes, A and B, for Biochemistry

Class	Minimum	25 <sup>th</sup> Centile	Median	75 <sup>th</sup> Centile	Maximum
A	25	35	52	76	96
B	32	40	52	68	90

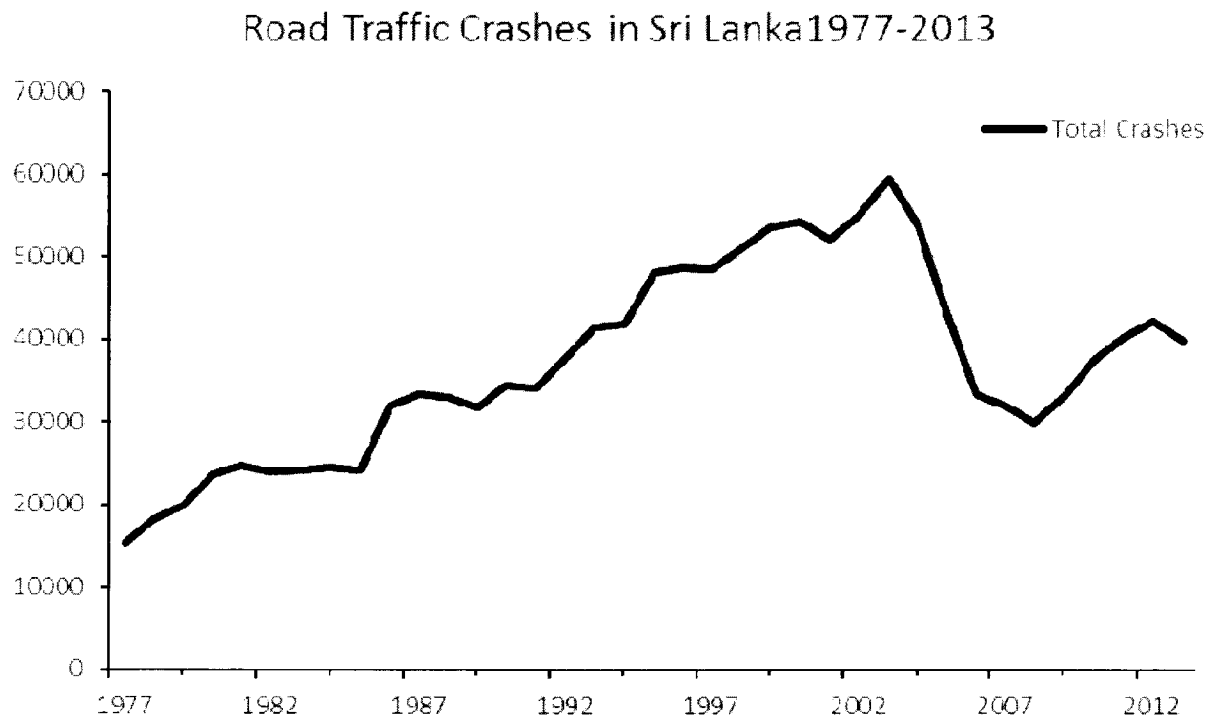
2.2.1 Draw box plots for the two data sets. (40 marks)

2.2.2 Briefly describe the box plots and compare the two classes. (60 marks)

## Part F

### 2.3

Following is a chart on the incidence of road traffic crashes in Sri Lanka from 1977 to 2013



2.3.1 What are the labels for x and y axes? (10 marks)

2.3.2 Briefly describe the overall trends reflected in the chart. (40 marks)

2.3.3 Suggest possible reasons for the significant change around 2003. (50 marks)