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

**MSC (BIOMEDICAL INFORMATICS)**

**END OF SEMESTER EXAMINATION – APRIL 2018**

**Date :** 24th April 2018 **Time** : 1.30 pm – 3.00 pm

**Answer all questions.**
**Answer each question in a separate book.**

## Module 1
## Mathematics for Computing and Object Oriented Programming

1.

1.1 Draw a flow chart to generate a multiplication table. The application should prompt the user to suggest a times table and generate multiples of numbers up to 12. (30 marks)

1.2 Write pseudocode that describes the process of looking up a Patient registration number in a Clinic Register. If the patient is already registered, the design should be able to fetch the patient demographics, past treatment and allergy history. If the number is not found you should register the patient as a new patient (you don't have to write exact database connectivity codes). (50 marks)

1.3 List 05 object oriented concepts. (20 marks)

Contd..../2-

## Module 4
## Networking, Computer Hardware, Operating Systems and Application Packages

2.

2.1 Briefly discuss bus topology. (10 marks)

2.2 Compare and contrast bus topology with star topology. (10 marks)

2.3 Discuss the structure of IP4 and how it is different from IP6. (30 marks)

2.4 How would you propose a network structure for Provincial Department of Health Services? In this scenario all the provincial health care institutions should come under the same network. Discuss the subnet structure (IP ranges and subnet masking) to enable required visibility. (50 marks)

## Module 5
## Software Engineering and Software Project Management

3.

3.1 Define the software process. (10 marks)

3.2 Name the four (04) key activities involved in the software process. (20 marks)

3.3 Discuss the phases of the software testing process with suitable examples drawn from an Electronic Medical Record development scenario. (30 marks)

3.4 Compare and Contrast Agile Software Development method with Plan-Driven Software Development methods. (40 marks)