

Master Copy

POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MSc (BIOMEDICAL INFORMATICS) END OF SEMESTER I
EXAMINATION – APRIL 2021

Date:- 5th April 2020

Time:-1.30 p.m. - 3.00 p.m.

Answer all three (03) questions.

Answer each question in a separate book.

MODULE I

Mathematics for Computing and Object-Oriented Programming

1.

1.1. The national COVID 19 vaccination programme is currently being implemented. The Epidemiology Unit requested you to develop an application to monitor the serious adverse effects following vaccination. If the percentage of serious adverse effects is more than 5%, an automated message should be generated.

1.1.1. List four (04) assumptions you would consider in developing this application. (20 marks)

1.1.2. Write a pseudocode for this application. (40 marks)

1.2. Convert the following decimal numbers to binary numbers. (20 marks)

1.2.1. 3567

1.2.2. 72.46

1.3. Convert the following binary numbers to decimal numbers. (20 marks)

1.3.1. 11101010

1.3.2. 1001.101

Contd.../2-

MODULE 4**Networking, Computer Hardware, Operating Systems and Application Packages**

2.

- 2.1. Describe the role of default Gateway in IPV4 network. (15 marks)
- 2.2. List main functions of an operating system. (10 marks)
- 2.3. Compare and contrast twisted pair cables and fiber optic cables. (30 marks)
- 2.4. List three (03) devices used in a network indicating the relevant network layer of the Open Systems Interconnection (OSI) model for each device. (15 marks)
- 2.5. Briefly describe functions of two (02) network devices listed in 2.4. (30 marks)

MODULE 5**Software Engineering and Software Project Management**

3.

- 3.1. Discuss the relevance and significance of agile software development principles in the current pandemic situation. (50 marks)
- 3.2. List the three (03) main types of software maintenance. (15 marks)
- 3.3. Discuss possible conflicts that may arise when applying different software maintenance models. (35 marks)