POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MSc (BIOMEDICAL INFORMATICS) SEMESTER II (SPECIAL) EXAMINATION – SEPTEMBER 2023

Date:- 5th September 2023 **Time:-** 2.00 p.m. - 3.30 p.m.

SEQ PAPER

Answer **all three (03)** questions.
Answer each question in a separate book.

Module 6 - Basic Epidemiology and Statistics

1.

1.1. Adoption of Electronic Health Records (EHRs) has many advantages.

    1.1.1. Critically evaluate the impact of implementation of Electronic Health Records (EHRs) on the accuracy and efficiency of disease surveillance in the Sri Lankan healthcare system. (25 marks)

    1.1.2. Suggest a mechanism to utilize data generated by the EHR systems for epidemiological research and public health interventions. (25 marks)

1.2. Sri Lanka has experienced a number of public health emergencies including the Covid-19 pandemic.

Describe the epidemiological impact of the widespread adoption of Telehealth services on healthcare access, patient outcomes, and the spread of communicable diseases, particularly during the Covid-19 pandemic period. (50 marks)

Module 8 - Public Health Informatics

2. Information and Communication Technologies (ICT) has become an acceptable tool in public health informatics in Sri Lanka.

2.1. List four (04) principles of public health informatics. (20 marks)

2.2. Discuss public health data sources and their relationship to health determinants. (30 marks)

2.3. As the Medical Officer/Health Informatics, you are asked to expand the existing Filariasis information system to declare elimination.

Explain how you would apply ICT principles in designing the public health information system with suitable examples. (50 marks)

Module 9 - Bioinformatics

3.

3.1. Biological databases and repositories have recently gained attention among the Sri Lankan medical community.

    3.1.1. Discuss the features of a biological database.   (25 marks)

    3.1.2. Discuss the potential challenges and solutions in maintaining privacy and confidentiality of a biological repository.   (25 marks)

3.2. Gene sequencing undertaken as part of clinical care, primarily generates a list of Single Nucleotide Polymorphisms (SNPs) which have to be annotated and analysed.

    3.2.1. Describe three (03) bioinformatic resources/tools which can be used to predict the effects of such SNPs.   (20 marks)

    3.2.2. Discuss the advantages and disadvantages of personalised genetic testing.   (30 marks)