POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

SELECTION EXAMINATION FOR MSc (COMMUNITY MEDICINE)
OCTOBER 2021

Date: 18th October 2021 Time: 1.00 p.m. – 4.00 p.m.

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

PART A

1. Prematurity has been one of the main reasons for infant mortality and neonatal mortality in Sri Lanka for the past few years.

   1.1. Define the terms **'prematurity'**, **'infant mortality rate'** and **'neonatal mortality rate'**. (15 marks)

   1.2. List five (5) reasons for premature births in Sri Lanka. (20 marks)

   1.3. Outline the effects of premature births on the health care delivery system in Sri Lanka. (25 marks)

   1.4. Discuss the activities that you would conduct as the Medical Officer of Health (MOH) to reduce the incidence of premature births in your area. (40 marks)

2. The Non-communicable Disease Risk Factor Survey (STEP survey) carried out in Sri Lanka in 2015 reported a high prevalence of risk factors for non-communicable diseases (NCDs).

   2.1. Define **'modifiable and non-modifiable risk factors for non-communicable diseases'**, giving examples. (20 marks)

   2.2. Describe interventions that can be implemented for the different levels of prevention of non-communicable diseases. (40 marks)

   2.3. Describe the services provided at primary care level for the prevention of non-communicable diseases in Sri Lanka. (40 marks)

Contd...../2-

3. Child **contacts** below 5 years of age of infectious tuberculosis (TB) patients are eligible for **prophylactic treatment** after excluding active TB. A recent programme review revealed that **coverage of prophylactic treatment** for TB is only 45% in the last year.

3.1. Define the terms 'contact', 'prophylactic treatment' and 'treatment coverage' with regard to communicable diseases. (15 marks)

3.2. List three (3) diseases for which contact investigation is carried out. (15 marks)

3.3. Briefly describe the importance of contact investigation in the control of communicable diseases. (30 marks)

3.4. Outline the activities that can be conducted by the preventive health team to increase the coverage of prophylactic treatment in child contacts of tuberculosis patients. (40 marks)

Part B

4

4.1. State the scale of measurement of the following variables: (20 marks)

4.1.1. Serum fasting blood glucose level.

4.1.2. Body temperature in Celcius scale.

4.1.3. Ethnicity.

4.1.4. Social class.

4.2. Indicate the statistical test that is appropriate for the following analyses, giving reasons. (40 marks)

4.2.1. To compare mean heights (in centimetres) of urban and rural children matched for age and sex.

4.2.2. To compare the frequencies of vegetarians among Buddhist and Hindu students in the University of Colombo.

4.2.3. To compare the mean marks scored for Mathematics by Year-11 students in a selected school with the national mean mark for Mathematics.

4.2.4. To determine the association of the weight of pregnant women with their period of amenorrhoea (POA).

Contd...../3-

4.3. An intervention study was conducted to investigate the effect of a nutritional intervention for pregnant women on the birthweight of their offspring. The findings of the study are summarized below.

Group	Mean birthweight	95% Confidence Interval
Intervention	3.3 kg	2.7 – 3.5 kg
Control	2.5 kg	2.2 – 2.8 kg

Interpret the effectiveness of the intervention in increasing the birthweight.
(40 marks)

5. Given below are the findings from a retrospective cohort study, which compared the outcomes of vaccination for SARS-CoV 2 among children aged 12 – 17 years. Data on infections, hospital admissions, ICU admissions and deaths due to SARS-CoV 2 (as measures of effectiveness of vaccination) and the occurrence of myocarditis (as a possible adverse effect), during a period of 180 days, were extracted from secondary data.

Parameters	Vaccinated population (n=500,000)	Non-vaccinated population (n=1,500,000)
Number of SARS-CoV 2 infections	2440	12540
Number of hospitalizations due to SARS-CoV 2 infection	105	1950
Number of ICU admissions due to SARS-CoV 2 infection	15	540
Number of deaths due to SARS-CoV 2 infection	1	75
Number of myocarditis cases	65	35

5.1. Calculate the relevant measures-of-association to determine the effectiveness and safety of the vaccine for SARS-CoV 2 in children aged 12 – 17 years.
(40 marks)

5.2. Comment on the effectiveness and safety of the vaccine for SARS-CoV 2 in children aged 12 – 17 years. (60 marks)