# POSTGRADUATE INSTITUTE OF MEDICINE
## UNIVERSITY OF COLOMBO

## SELECTION EXAMINATION FOR MSc (COMMUNITY MEDICINE)
### SEPTEMBER 2023

**Date:-** 15<sup>th</sup> September 2023           **Time:-** 9.00 a.m. – 12.00 noon

Answer **all five (05)** questions.
Answer each question in a **separate book.**

## PART A

1.

1.1. The population data of a region are given below:

> Estimated mid-year population.................................300 000
> Number of live births ..........................................5 500
> Number of maternal deaths ........................................2
> Number of infant deaths ..........................................35
> Number of infant deaths in the first month of life .....................30
> (20 infant deaths were within the first week of life)
> Total number of deaths..........................................3 000
> Number of still births ...........................................20

Calculate six (06) demographic indicators using the information given above.       **(30 marks)**

1.2. The total fertility rate (TFR) in Sri Lanka declined from 3.74 in 1979 to 2.0 in 2020.
State four (04) reasons for this decline.       **(20 marks)**

1.3. Describe the anthropometric indicators used to assess the nutritional status of under 5-year-old children in the child nutrition programme in Sri Lanka.       **(50 marks)**

2.

2.1. Define the term "maternal death"       **(10 marks)**

2.2. State the three-delay model in maternal mortality.       **(10 marks)**

2.3. Describe briefly the antenatal care services provided at field level to prevent maternal deaths in a Medical Officer of Health area.       **(30 marks)**

2.4. Discuss the following statement:
"Addressing the unmet need for family planning is important in preventing maternal morbidity and mortality in Sri Lanka".       **(50 marks)**

3.

3.1.

  3.1.1. Explain the epidemiologic triad in relation to vector borne diseases.

                                               (20 marks)

  3.1.2. Briefly describe the dengue prevention and control strategies in relation to the epidemiological triad.          (30 marks)

3.2.   List five (05) services provided at the well woman clinic.    (20 marks)

3.3.   As the Medical Officer of Health, you received a call from a factory that many workers are complaining of nausea and vomiting after having lunch supplied by a catering service.

      List the steps you would follow in managing this situation.    (30 marks)

## PART B

4.

4.1.   A researcher wishes to study the prevalence and factors associated with anaemia among children under 5 years of age in a selected Medical Officer of Health area.

  4.1.1. State the most appropriate study design giving reasons.   (20 marks)

  4.1.2. State two (02) advantages and two (02) disadvantages of the study design mentioned in 4.1.1.          (20 marks)

4.2.   "The cause specific death rate in Sri Lanka is highest for cardiovascular diseases. However, case fatality rate is highest for lung cancer".
Discuss this statement.                     (30 marks)

4.3.   List five (05) ethical issues that should be taken into consideration when conducting a randomized control trial.       (30 marks)

5. A case-control study was conducted to determine the risk factors of leptospirosis. The study included 100 patients with leptospirosis as cases and 200 participants without leptospirosis as controls.

5.1. State the case: control ratio in the above study. (05 marks)

The baseline characteristics of the cases and controls are given below.

| Variable | Cases (n=100) | Controls (n=200) | p Value |
|---|---|---|---|
| Age: Mean (SD) years | 41.3 (8.2) | 44.2 (9.1) | 0.008 |
| Sex: Male n (%) | 66 (66.0%) | 139 (69.5%) | 0.539 |

5.2. State the most appropriate statistical test to be used for the following, giving reasons.

5.2.1. to compare the mean age between the two groups. (15 marks)

5.2.2. to compare the sex distribution between the two groups. (15 marks)

5.3. Comment on the statistical significance of the

5.3.1. difference in mean age between the two groups. (05 marks)

5.3.2. sex distribution between the two groups. (05 marks)

5.4. The association between the involvement in farming activities and having leptospirosis was calculated and the findings are given below.

| | Cases | Controls | Odds ratio | 95% Confidence Interval | P value |
|---|---|---|---|---|---|
| Involved in farming activities | 65 | 87 | 2.4 | 1.5 – 3.9 | <0.001 |
| Not involved in farming activities | 35 | 113 | | | |

Interpret the association between the involvement in farming activities and having leptospirosis. (40 marks)

5.5. Based on the findings, an education session about leptospirosis was conducted for a selected group of 200 farmers. The knowledge of farmers was assessed on a scale from 0 to 100 using the same questionnaire before and after the education session.
Mention the most appropriate statistical test to compare the mean pre and post-knowledge scores in the group of farmers giving reasons.

(15 marks)