



**UNIVERSITY OF RUHUNA**  
**FACULTY OF MEDICINE**  
**Third Examination for Medical Degrees (Part II)**  
**05<sup>th</sup> March 2026**  
**Community Medicine – Paper I**  
**9.00 a.m. to 12.00 noon (3 hours)**

Q1

Answer all questions  
 Illustrate your answers with labelled diagrams wherever necessary  
 Use only the space provided for answering

**Index number:** .....

1.
  - 1.1. State the sampling method described in the following situations. (40 marks)
    - 1.1.1. A public health researcher plans to estimate the burden of hypertension among adults aged 30–60 years in Galle District. A complete list of eligible adults is obtained from electoral registers, and participants are selected randomly.  
 .....
    - 1.1.2. An urban MOH area reports an increase in sexually transmitted infections, but men who have sex with men (MSM) are not captured in routine health information systems. Initial participants are identified through community-based organizations and NGOs and are asked to refer peers from their social networks.  
 .....
    - 1.1.3. The Ministry of Health plans a nationwide assessment of child nutrition in rural areas. Districts, MOH areas, PHM areas, and households are selected in successive stages.  
 .....
    - 1.1.4. A researcher wants to compare physical activity levels between male and female undergraduates. Students are first divided by sex, and samples are drawn proportionately from each group.  
 .....
    - 1.1.5. An OPD receives a high daily patient load, making random selection difficult. The investigator selects every 5th patient after a random start to assess service quality.  
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1.2. A study was conducted to compare the mean systolic blood pressure between male and female adults. Fifty males and fifty females were included in the study. The study revealed that the mean systolic blood pressure was higher among males ( $132.4 \pm 14.6$  mmHg) compared to females ( $126.1 \pm 13.2$  mmHg) with 0.011 p value. The 95% confidence interval for the mean difference was 1.4 mmHg to 11.2 mmHg.

1.2.1. State the null hypothesis and alternative hypothesis for this study. (10 marks)

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1.2.2. Which statistical test is the most appropriate to compare mean systolic blood pressure between males and females in this study? (10 marks)

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1.2.3. Calculate the mean difference between males and females. (10 marks)

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1.2.4. Using the study data, report the point estimates for systolic blood pressure in the study population. (12 marks)

Males .....  
Females .....  
Difference according to gender .....

1.2.5. Is the mean difference stated above statistically significant at 0.05 significance level? Give the reason for your answer. (08 marks)

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1.2.6. Interpret the 95% confidence interval. (10 marks)

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Q2

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**Index number:** .....

2.

2.1.

2.1.1. List **five (05)** commonly used measures of mortality and provide their formulas. (15 marks)

Measures of mortality	Formula

2.1.2. Define Healthy Life Expectancy (HALE). (05 marks)

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2.2.

2.2.1. Define the term “Maternal Death”. (10 marks)

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2.2.2. Name and briefly describe the delays contributing to maternal deaths. (25 marks)

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2.2.3. State **five (05)** factors that can contribute to delays causing maternal deaths. (15 marks)

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Q3

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**Index number:** .....

3. The administration of an elderly home is planning to conduct a health screening of their inmates. A nutritional assessment will be conducted as a component of the health screening.

3.1 State **three (03)** reasons that make the elderly more vulnerable for nutritional problems. (15 marks)

- 1.....  
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- 2.....  
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- 3.....  
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3.2 List **four (04)** different types of nutritional assessment methods that can be used to assess the nutritional status of the elderly in this institution. (10 marks)

- 1.....
- 2.....
- 3.....
- 4.....

3.3 Outline **three (03)** factors that can affect the nutritional status of institutionalized elderly, giving examples. (30 marks)

- 1.....  
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- 2.....  
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3.....  
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3.4 List **four (04)** adverse outcomes of undernutrition in elderly. (20 marks)

- 1.....
- 2.....
- 3.....
- 4.....

3.5 Briefly describe the dietary recommendations and other measures that would improve the nutritional status of the elderly in this institution. (25 marks)

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4.2. Sri Lanka's first nationwide Household Survey of Drinking Water Quality was conducted in 2021, assessing water quality, sanitation, and hygiene practices to inform national WASH planning and health policy.

4.2.1. What does WASH stand for? (05 marks)

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4.2.2. What is meant by safe and adequate supply of water? (10 marks)

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4.2.3. List **five (05)** Indicators of water pollution. (10 marks)

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- 2.....
- 3.....
- 4.....
- 5.....

4.2.4. State the WHO criteria and standards used to assess the quality of drinking water. (10 marks)

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4.2.5. Outline the role of Public Health Inspector in safeguarding water quality in Sri Lanka.

(15 marks)

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Q5

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5.

5.1. Sri Lanka faced a huge natural disaster due to the cyclone ‘Ditwah’ in November 2025 causing widespread flooding and multiple landslides displacing a large number of people in the country. Managing health of these internally displaced people is a responsibility of the MOH of the area.

5.1.1. Define the term “disease outbreak”. (08 marks)

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5.1.2. List **three (03)** disease outbreaks that you can expect in the above situation. (12 marks)

1. ....
2. ....
3. ....

5.1.3. List **three (03)** long term health effects among internally displaced people. (12 marks)

1. ....
2. ....
3. ....

5.1.4. State the steps that the MOH should follow in investigating a disease outbreak. (18 marks)

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5.2. The MOH and his team are interested in investigating whether the administration of high-dose vitamin C to internally displaced people would prevent the occurrence of infectious diseases.

5.2.1. What is the most appropriate study design to test the above hypothesis? (10 marks)

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5.2.2. State **two (02)** reasons for selecting the study design you mentioned in 5.2.1. (10 marks)

1. ....

2. ....

5.2.3 Briefly describe how you would design this study using a diagram. (20 marks)

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5.2.4 State **two (02)** methods that can be used to control biases in this study. (10 marks)

1. ....

2. ....