



Faculty of Medicine, University of Ruhuna  
Third Examination for Medical Degrees (Part II) July 2021  
Community Medicine Paper I  
Friday 16<sup>th</sup> July 2021

Answer all 05 questions

(9.00 a.m.- 12.00 noon ) 3 hours

Answer each question in a separate book

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**PART A**

1.
  - 1.1 List **two (02)** variables that are measured using ratio scale. **(10 marks)**
  - 1.2 List **two (02)** variables that are measured using nominal scale. **(10 marks)**
  - 1.3 Describe the difference between probability and non-probability sampling methods. **(10 marks)**
  - 1.4 List **two (02)** characteristics of standard normal distribution. **(10 marks)**
  - 1.5 What is the difference between student t test and paired t test? **(10 marks)**
  - 1.6 A sample of 100 individuals has a mean age  $\pm$ SD of  $40.08 \pm 9.38$  years. What can you infer about the mean age of the population? **(20 marks)**
  - 1.7 The correlation coefficient between heart rate and Body Mass Index (BMI) of a sample of adults was 0.23 ( $r=0.23$ ) and  $p=0.20$ . What can you conclude about the correlation coefficient? **(20 marks)**
  - 1.8 In a normally distributed variable, what is the relationship between Standard Deviation (SD) and Standard Error of Mean (SEM)? **(10 marks)**

**PART B**

2.
  - 2.1 You have been appointed as the Medical Officer of Health (MOH) of a health unit area. Several Public Health Midwife (PHM) areas in your MOH area are under lockdown due COVID-19 infection.
    - 2.1.1 Briefly describe how you would provide maternal care during the lockdown period. **(25 marks)**
    - 2.1.2 Outline the measures you would take to prevent maternal deaths due to COVID-19 infection in your health unit area. **(25 marks)**

## 2.2

2.2.1 Describe the effects of COVID-19 pandemic on demographic events and thereby how the global demography is expected to change. **(20 marks)**

2.2.2 The following table shows mortality data of a study cohort of 19000 in the year 2019.

Cause of Death	50-69 years (n=12000)	70- ≥80 years (n=7000)
Vascular disease	180	460
Cancers	110	255
Respiratory disease	20	154
Injuries and suicides	9	10
Other causes	22	115
All causes	341	994

Refer to the information in the table and calculate the following.

- Age specific death rate for 50-69 year age group **(05 marks)**
- Cause specific death rate for cancers **(05 marks)**
- Proportional mortality rate for vascular disease **(05 marks)**
- If the national death rates for 50-69 and 70-≥80-year age groups are 8.5 and 11.5 per thousand respectively, compare the mortality of the whole study cohort using an appropriate method. **(15 marks)**

### PART C

3. An 18-year-old pregnant mother from Citrus tea estate was admitted to Teaching Hospital, Mahamodara at 38 weeks of gestation. Maternal BMI at booking visit was 18.23 kg/m<sup>2</sup> and the weight gain during the pregnancy was 11 kg. She delivered an apparently healthy baby girl with a birth weight of 2.3 kg.

- Based on the information given, list **three (03)** factors that could have made this pregnant mother nutritionally vulnerable during pregnancy. **(15 marks)**
- What are the consequences that you would expect in the baby due to her present condition? **(30 marks)**
- Briefly describe the nutritional management of this mother. **(40 marks)**
- State a non-food related intervention that can improve the mother's nutritional status, giving reasons. **(15 marks)**

**PART D**

- 4.
- 4.1 Describe role of public health team in ensuring environmental sanitation in the community. **(50 marks)**
- 4.2
- 4.2.1 Briefly describe the occupational health problems among garment factory workers in Sri Lanka. **(25 marks)**
- 4.2.2 Discuss the measures which can be adopted to prevent an outbreak of Covid-19 in a garment factory. **(25 marks)**

**PART E**

5. A medical research team in Sri Lanka wanted to evaluate whether a herbal syrup used by people is effective in prevention of COVID-19 infection. A study was designed with 200 patients diagnosed to have COVID-19 infection and 400 age/sex matched close contacts of them who were quarantined at home. Both the patients and the contacts were inquired on taking this particular herbal syrup during last one-month period. The total number who had this medication was 300, of which 100 were cases.
- 5.1 State the study design. **(10 marks)**
- 5.2 State the study hypotheses. **(10 marks)**
- 5.3 Calculate a suitable measure of association to assess the risk of developing COVID-19 infection among users and non-users of the herbal syrup. Comment on your findings. **(50 marks)**
- 5.4 What is the best study design to address the above research question? Briefly explain your answer. **(30 marks)**