



Faculty of Medicine, University of Ruhuna
Third Examination for Medical Degrees (Part II) February 2021
Community Medicine Paper I
Monday 8th February 2021

Answer all 05 questions

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

Answer each question in a separate book

PART A

1. A study was conducted to assess the prevalence of obesity among 400 medical students in University of Ruhuna. Weight and height were measured. Mean weight of the students was 55 kg with a Standard Deviation (SD) of 5 kg. Mean height was 165 cm with a SD of 15 cm.
 - 1.1 Calculate the Standard Error for mean weight. (10 marks)
 - 1.2 Calculate the 95% Confidence Interval (CI) for mean weight of the population and interpret the results. (20 marks)
 - 1.3 Calculate the Coefficient of Variation for weight and height, and interpret the results. (30 marks)
 - 1.4 Pearson r test was used to assess the relationship between height and weight of the sample. Give reasons for selection of this statistical test. (10 marks)
 - 1.5 Data analysis revealed a Pearson r value of 0.31 with a p value of 0.57. Interpret the given results. (30 marks)

PART B

2. 2.1 Following table shows death rates of two countries during recent COVID-19 pandemic.

Age Group (years)	Iceland		Bhutan	
	Population (n)	Death Rate per 1000	Population (n)	Death Rate per 1000
0 – 14	40,000	0.5	200,000	1.0
15-59	75,000	5.0	400,000	10.0
≥ 60	185,000	14.4	100,000	29.33
Total	300,000		700,000	

- 2.1.1 Calculate and compare the crude death rates of the two countries. *(20 marks)*
- 2.1.2 Briefly describe the advantages and disadvantages of using crude death rate for comparison of mortality between countries. *(10 marks)*
- 2.1.3 Calculate and comment on the mortality rates of the two countries using a better method. *(20 marks)*
- 2.2
- 2.2.1 What is preconception care? *(10 marks)*
- 2.2.2 List **five (05)** activities carried out under the preconception care programme of Sri Lanka. *(10 marks)*
- 2.2.3 Briefly describe how the above mentioned activities help to achieve a healthy pregnancy outcome. *(30 marks)*

PART C

3. During a School Medical Inspection (SMI) conducted in a school in Galle Municipality area, the prevalence of over nutrition among children in Grade Seven (07) was found to be 20%.
- 3.1 List the anthropometric parameters measured during SMI that are used to assess nutritional status? *(10 marks)*
- 3.2 Outline the probable contributory factors for overweight/obesity in this age group. *(40 marks)*
- 3.3 Briefly describe how you would advice the school children with overweight / obesity to improve their nutritional status. *(50 marks)*

PART D

4. 4.1
The number of dengue fever patients notified in an urban health unit area was found to have increased over the last few months. As the Medical Officer of Health (MOH), you have planned an awareness program for the Environmental Committee of the area.
Describe how you would educate them on,
- 4.1.1 possible reasons for the rising incidence of dengue fever in this area. *(10 marks)*
- 4.1.2 the measures that can be adopted by the residents and local health authorities to control dengue fever in this area. *(40 marks)*

4.2

4.2.1 Briefly describe the occupational health problems of nurses. *(25 marks)*

4.2.2 Outline the measures that can be used to minimize or prevent these problems. *(25 marks)*

PART E

5. A researcher wanted to assess the efficacy of a newly developed test for screening COVID-19. Currently the RTPCR (Reverse Transcriptase Polymerase Chain Reaction) is considered as the gold standard in diagnosing the disease. Both these tests were conducted in a population of 2000 people. RTPCR was positive among 200 individuals, the new screening test was positive among 360 individuals and both the tests were positive among 160 individuals.

5.1 Draw the 2 x 2 table and calculate the following in relation to the new screening test. *(50 marks)*

- a. Positive predictive value
- b. Negative predictive value
- c. Percentage false positive
- d. Percentage false negative

5.2 Interpret the following. *(20 marks)*

- a. Sensitivity of the new screening test is 80% (95% confidence interval 75–85%)
- b. Specificity of the new screening test is 89% (95% confidence interval 80–98%)

5.3 Comment on the appropriateness of screening COVID-19, based on the criteria of a disease suitable for screening. *(30 marks)*