



**RAJARATA UNIVERSITY OF SRI LANKA**  
**FACULTY OF APPLIED SCIENCES**

**BSc in Health Promotion**  
**Second Year – Semester I Examination – July/August 2023**

**HPT 2104 – INTRODUCTION TO EPIDEMIOLOGY**

**Time: One and half (1 ½) hours**

**Answer ALL questions.**

1. a) Answer the questions based on the information given in the table below.

HIV-related deaths and population data by age for all ethnic groups and for black African males in country A are shown in the following table.

Age group (Years)	Total Population (All ethnic groups)		Black African Males	
	HIV Deaths	Population	HIV Deaths	Population
0 – 4	191	18,252	47	1,393
5 – 14	47	34,146	7	2,697
15 – 24	492	38,252	145	2,740
25 – 34	5,026	43,315	1,326	2,549
35 – 44	4,794	34,305	1,212	1,663
45 – 54	1,838	23,276	395	1,117
≥55	1,077	51,855	168	1,945
<b>Total</b>	<b>13,465</b>	<b>243,401</b>	<b>3,300</b>	<b>14,104</b>

- i. Calculate the HIV specific mortality rate for the total population. **(10 marks)**
- ii. Calculate the HIV specific mortality rate for the black African male population. **(10 marks)**
- iii. Calculate the percentage of black African males in country A. **(10 marks)**
- iv. Calculate the percentage of all HIV deaths occur in black African male population in this country? **(10 marks)**
- v. Explain the distribution of HIV deaths within the ethnic groups of this country based on the above calculations in above 1. (a) iii & iv. **(20 marks)**

b) Answer the questions based on the information given below.

A prevalence survey which was conducted from 1<sup>st</sup> of January to 31<sup>st</sup> of December 2021 identified 1,000 patients with schizophrenia in a city of two million people. The incidence of disease schizophrenia in this population is 5 per 100,000 for the year 2021.

- i. Determine the percentage of newly diagnosed schizophrenia patients in this city in 2021. **(15 marks)**
- ii. Discuss the advantages of calculating prevalence of a disease in a population. **(25 marks)**

2. a) Identify the most appropriate epidemiological study design for following scenarios.

- i. A group of farmers who were living in Anuradhapura district from 1989- 2009 and were living in Gampaha district in the same period were selected for a study conducted in year 2020. Investigators wanted to determine and compare the prevalence of chronic kidney disease in both groups. **(15 marks)**
- ii. 250 persons with round worm infestation and 250 healthy persons were selected for a study. All participants were asked about their consumption of pork and other meat products. **(15 marks)**

b) Answer the questions based on the information given below

In a cohort study to investigate the relationship between red meat consumption and ischemic heart disease, 12.4% of 320 study participants in the exposure group developed ischemic heart disease and 7.7% of 336 study participants in the control group developed ischemic heart disease.

- i. Create a contingent (2x2) table for the above study. **(15 marks)**
- ii. Calculate the absolute risk for the exposure group. **(15 marks)**
- iii. Calculate the absolute risk for the control group. **(15 marks)**
- iv. Estimate the risk of red meat consumption for ischemic heart disease by calculating the relative risk. **(25 marks)**

3. a) Discuss why relative risk (RR) cannot be calculated in a case control study. **(25 marks)**
- b) Explain by giving examples why randomized controlled trials are considered as the best epidemiological study to establish the causation. **(25 marks)**
- c) Discuss by giving examples how blinding contributes to improve quality of randomized controlled trials. **(25 marks)**
- d) Outline by giving examples **four (04)** advantages of case control studies. **(25 marks)**

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