



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

**B.Sc. (General) Degree in Health Promotion
Second Year – Semester I Examination – October/November 2015**

HPT 2104 - INTRODUCTION TO EPIDEMIOLOGY

Time: 1 ½ hours

Answer all (03) questions.

- Calculators will be provided.

1. a) In an Asian country with a population of 6 million people, 60,000 deaths occurred during the year 1995. These included 30,000 deaths from 100,000 people who contracted with Cholera. What was the case fatality rate of cholera in 1995?

(04 Marks)

- b) Data on the frequency of Malaria in two cities are given below.

Location	New cases	Year	Population
City A	58	2002	25,000
City B	35	2001-2002	7,000

Calculate the annual rate of occurrence of malaria in City A and City B.

(06 Marks)

- c) A prevalence survey conducted in 2003 revealed that there are 1000 cases of schizophrenia (A mental disorder) in a city with 2 million populations. The incidence of schizophrenia in this population is 5 per 100,000 (5/100,000) persons each year. What percent of the 1000 schizophrenia cases were newly diagnosed in 2003?

(10 Marks)

2. a) An advertisement in a medical journal stated that 2000 people with sore throat (throat infections) were treated with a new medicine. Within four days, 94% were well and without symptoms. The advertisement claims that the new medicine was effective in treating sore throat. Do you agree with this claim? Explain your answer.

(10 Marks)

b) A group of 2872 factory workers were exposed to a toxic chemical in their work places and another group of 5055 workers from another did not have such exposures. Both groups were followed up for 10 years. During the follow-up period, 60 in the exposed group developed thyroid cancers and only three of the unexposed group developed the same cancer.

(i) What is this study design? (04 Marks)

(ii) Tabulate these details in a 2x2 table. (06 Marks)

(iii) Calculate the Relative Risk of thyroid cancer for these two groups.

Show your work. (08 Marks)

(iv) Based on above calculated Relative Risk, what is your conclusion about the relationship between exposure to chemicals and thyroid cancer?

(07 Marks)

3. a) Identify the most suitable research design for the situations given below. Give reasons for your choice.

(i) In a study, 120 women with asthma and 120 women with no apparent diseases were contacted and asked whether they had ever exposed to passive smoking. What type of study is this? (06 Marks)

(ii) The physical examination records of all the students admitted to Rajarata University in 1995 were examined in 2014 to see if their recorded height and weight at the time of admission to the university was related to the development of heart diseases among them by 2014. What type of study is this?

(06 Marks)

(iii) Residents of three villages were asked to participate in a survey to identify the prevalence of cholera carriers. Because several cholera deaths have occurred recently, everyone present at the time underwent examination. What type of study is this?

(06 Marks)

b) Explain following statements.

(i) Randomised controlled trials are considered as the best epidemiology study design to establish the cause, Why?

(09 Marks)

(ii) A cohort study conducted in Colombo district to assess the relationship between exposure to passive smoking and lung cancers. The researchers reported that the Odds Ratio (OR) between the exposed and unexposed group is 1.76 with Confidence Interval (95% CI) (0.98 – 2.01). Does this result show that passive smoking is a cause of lung cancer? Explain your answer.

(09 Marks)

(iii) It is not possible to calculate Relative Risk to compare case and control groups in case control studies. Why?

(09 Marks)