



**Institute of Health Management Research
MBA Hospital and Health Management
Batch-28th (2023-2025)**

First Year, Term 1 End Term Examinations, November 2023

CC – 605 Essentials of Epidemiology

Time - 3 Hour

Maximum Marks: 50 (Minimum Marks: 20)

Instructions to students:

- This question paper contains 2 printed pages.
- Don't write anything on the Question Paper except writing your Enrolment No.

Part A

(Maximum Marks: 5)

Q1. Choose the most appropriate option for each of the following:

- (a) Epidemiological Transition is a change in the pattern of population proportion. (True/False) (1)
 - (i). True
 - (ii) False
- (b) In the case of Hypertension as a risk for heart diseases, which will be the major part of the population? With respect to the Iceberg Phenomenon. (MCQ) (1)
 - (i). Submerged Portion/Part
 - (ii) Tip of the iceberg
 - (iii) Water
- (c) Which is the correct statement? (1)
 - (i). In rates denominator is part of numerator.
 - (ii). In ratio numerator is part of denominator.
 - (iii). In ratio denominator is part of numerator.
 - (iv). In rates numerator is part of denominator.
- (d) Which is not a mode of transmission for HIV infection? (1)
 - (i). Blood transfusion
 - (ii). Sexual
 - (iii). Feco-oral
 - (iv). Transplacental
- (e) The outbreak is the statistical change of $(-)2SD$ in cases. (1)
 - (i). True
 - (ii) False

Part B

(Maximum Marks: 15)

Answer the following questions:

- Q2.** Write the difference between cohort studies and case-control studies. (2)
- Q3.** Briefly explain with examples the types of Surveillance methods. (3)
- Q4.** The population of "Perumannna" Panchayath is 36,000. There were 210 Tuberculosis patients detected and getting treatment from a PHC in the village in 2020. In the same year, there were five (5) deaths due to Tuberculosis out of 320 total deaths reported in Panchayath.
 - (a). Which agent causes tuberculosis?
 - (b). Calculate the prevalence of Tuberculosis in the year 2020.
 - (c). Case Fatality rate of tuberculosis in the given year.
 - (d). Proportional mortality rate for Tuberculosis in this Panchayath during the year 2020.
 - (e). Calculate the Crude Death Rate of the panchayat.
- Q5.** Explain types of data analysis in randomized controlled trials. (5)

Part C**(Maximum Marks: 30)****Answer the following questions, in detail. There is a choice between Q6 & Q7, Q8 & Q9 and Q10 & Q11.****Q6.** Explain Levels of Prevention with examples. (10)**OR****Q7.** Explain Modes of Transmission with examples. (10)**Q8.** Explain prevention & control strategies for cardiovascular diseases. (10)**OR****Q9.** Explain prevention & control strategies for cancers. (10)**Q10.** In a study to test the association between Smoking and the risk of death from coronary heart disease (CHD), 47 men aged 40-64 years who smoked more than 2 packs a day at baseline level and 144 men in the same age group smoking less than 1 pack a day were recruited. Both groups were followed up for 20 years, and deaths from CHD were recorded. There were 16 deaths in the more than 2 pack/day group and 10 deaths in the less than one pack/day group. (10)

Answer the following questions based on the description given above: -

- (a). What is the type of study design used here to conduct this study?
- (b). Calculate the attack rate in the exposed group.
- (c). Calculate the attack rate in the unexposed group.
- (d). What is the incidence of CHD in more than 2 pack/day group?
- (e). Calculate the Relative Risk of CHD.
- (f). Interpret the calculated relative risk.
- (g). Explain what the confounders in this study could be and how we can account for those confounders.

OR**Q11.** The use of cellular phones has been associated with the development of brain cancer, as evidenced in several studies. However, other studies have shown no such association. The table below includes the results of a case-control study of brain tumors and the regular use of cellular phones. This study was conducted using a control group made up of a random sample of the population of high school students who attended the same schools where the students with brain tumors were found. (10)

	Brain Tumors	No Brain Tumors
Cell phones	63	185
No Cell phones	96	292

Answer the questions based on the description of a study given above: -

- (a). How many study subjects were cases?
- (b). How many study subjects were controls?
- (c). What was the ratio of controls to cases?
- (d). What is the proportion of exposed among cases?
- (e). Calculate the odds ratio that compares disease among those who are exposed and those who are not exposed to cellular phones.
- (f). Interpret the calculated odds ratio.
- (g). Explain what the confounders in this study could be and how we can account for those confounders.