



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR**

**THIRD YEAR, FIRST TRIMESTER EXAMINATIONS
FOR THE DEGREE
OF**

**BACHELOR OF SCIENCE IN HEALTH PROFESSIONS
EDUCATION**

COURSE CODE: HPE 222

COURSE TITLE: MEDICAL EPIDEMIOLOGY

DATE: Wednesday 27th January 2021

TIME 2:00 - 5:00PM

INSTRUCTIONS TO CANDIDATES

Answer all Questions

Sec A: Multiple Choice Questions (MCQ) 20 Marks

Sec B: Short Answer Questions (SAQ) (40 marks)

Sec C: Long Answer Questions (LAQ) (40 marks)

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

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SECTION A

MULTIPLE CHOICE QUESTIONS

(20 MARKS)

1. Epidemiologists are interested in learning about
 - a. The causes of diseases and how to cure or control them
 - b. The frequency and geographic distribution of diseases
 - c. The causal relationships between diseases
 - d. the causal relationships between diseases
2. Diseases that are always present in a community, usually at a low, more or less constant, frequency are classified as having a _____ pattern.
 - a. Epidemic
 - b. Endemic
 - c. Pandemic
 - d. Hyperemic
3. In an epidemiological context, what is the population at risk?
 - a. The role of nutritional factors in causing disease in a population.
 - b. How changes in food intake in the population can promote good health.
 - c. Both of the options given are correct.
 - d. None of the options given is correct.
4. In which one of the following circumstances will the prevalence of a disease in the population increase, all else being constant?
 - a. If the incidence rate of the disease falls.
 - b. If survival time with the disease increases.
 - c. If recovery of the disease is faster.
 - d. If the population in which the disease is measured increases.
5. Which of the following statements about exposures is true?
 - a. 'Exposure' refers to contact with some factor that may be harmful or beneficial to health.
 - b. An exposed individual has a greater risk of disease.
 - c. Dietary intake is not an 'exposure' because individuals make a choice about what they eat.
 - d. High body mass index is a risk factor for a range of health conditions, therefore, it cannot be treated as a single exposure.
6. What are focus areas of nutritional epidemiology?
 - a. The role of nutritional factors in causing disease in a population.
 - b. How changes in food intake in the population can promote good health.
 - c. Both of the options given are correct.
 - d. None of the options given is correct.
7. Epidemiological measures of effect assess the _____ between an exposure and an outcome.
 - a. strength of the causal mechanisms
 - b. strength of the reversibility
 - c. strength of the association
 - d. strength of a confounding factor

8. It is possible to reduce (though not eliminate) information bias in assessment of dietary intake by
 - a. Gathering information about many different aspects of people's dietary habits.
 - b. Collecting data about dietary intake at the onset of a study, before people have experienced symptoms of disease.
 - c. Collecting data on all possible confounders.
 - d. Making sure that the study sample is representative of the population.
9. In a cohort study, the risk ratio of developing diabetes was 0.86 when comparing consumers of tea (the exposed) to those who did not drink tea (the unexposed). Which one statement is correct?
 - a. The tea drinkers have lower risk of developing diabetes.
 - b. The tea drinkers have higher risk of developing diabetes.
 - c. Based on the information given we cannot tell if the observed difference in disease risk is the result of chance.
 - d. The risk ratio is close to the value one, so there is no difference in disease risk between the two groups.
10. When epidemiologists judge the evidence to establish possible causes of a health outcome, they consider
 - a. The estimated strength of the association between an exposure and the outcome.
 - b. Evidence that the exposure of interest has appeared before the outcome.
 - c. Evidence showing that reductions in the exposure level will reverse the risk of the outcome.
 - d. All of the options given.
11. Randomized, controlled trials provide strong evidence that an observed effect is due to the intervention (the assigned exposure). One reason is because
 - a. When the participants are randomized, many characteristics and possible confounding factors are likely to be evenly distributed in the groups.
 - b. It is easier to measure the outcome variable with great precision in randomized, controlled trials compared to in other study designs.
 - c. The exposure level and the outcome are measured at the same time.
 - d. The study participants are volunteers and therefore motivated to take part in the study.
12. Confounding is a particular challenge in nutritional epidemiology because
 - a. People change their diets over time.
 - b. It is difficult to measure people's diets accurately in large studies.
 - c. There are no good methods to adjust for confounding in nutritional studies.
 - d. Different dietary components are correlated with each other, making it difficult to separate their effects.
13. Which year did the World Health Organization first express the right to health as a fundamental human right?
 - a. 1946
 - b. 1952
 - c. 1987
 - d. 2000
14. Which of the following is not the analytical study?
 - a. Cross sectional comparative study
 - b. Case control study

- c. Cohort study
 - d. Prevalence study
15. Sentinel surveillance indicates
- a. identifying the missing cases
 - b. identifying high risk group
 - c. surveillance of water population
 - d. surveillance of environmental control
16. Odds ratio is calculated in
- a. Case control study
 - b. Cross sectional study
 - c. Cohort study
 - d. Randomized trial
17. Prevention of emergence or development of risk factors is a type of
- a. Primary prevention
 - b. Secondary prevention
 - c. Tertiary prevention
 - d. Primordial prevention
18. In the epidemiological terminology human host is referred to as
- a. Soil
 - b. Seed
 - c. Extrinsic factor
 - d. none of them
19. Level of resistance of a community or group of people to a particular disease is
- a. Passive immunity
 - b. Active immunity
 - c. Herd immunity
 - d. None of them
20. The social gradient that reflects the disparity in morbidity and mortality between those in different socioeconomic classes is often referred to as a _____.
- a. health gradient
 - b. sex gradient
 - c. postcode gradient
 - d. income gradient

SECTION B- SHORT ANSWER QUESTIONS (40 MARKS)

1. Bias is defined as the systematic deviation of results or inferences from truth. Bias is extremely difficult to completely avoid when undertaking scientific study. Therefore, studies are designed in ways that minimize the sources and effects of bias. Describe any five types of bias (10 Marks).
2. When analyzing results of an epidemiologic study, there are two categorical types of error when either accepting or rejecting the null hypothesis. Describe the two types of errors (10 marks)
3. Name;
 - a) The three components of the epidemiological triad. (2 Marks)
 - b) Briefly describe the four elements of the chain of transmission? (8 marks)
4. Case definition is a term used in epidemiology; (10 marks)
 - a) What does a case definition determine? (3 marks)
 - b) What are the three types of case definitions which help in identifying specific cases? (3 marks)
 - c) What are the four components/criteria of a case definition (4 marks)

SECTION C -LONG ANSWER QUESTIONS (40 MARKS)

1. Medical practitioners use many diagnostic tests to determine what may be wrong with a patient and how it may be treated. The diagnostician must realize that these tests are fallible and that results are usually only close approximations of "truth." Those tests or diagnostic procedures known to produce the absolute best results are termed "gold standard" tests. It is against these gold standards that newer, usually faster and more convenient, tests are measured in terms of sensitivity and specificity. Discuss; (20 Marks)
 - a) Specificity
 - b) sensitivity
 - c) positive predictive value
 - d) Negative predictive value
2. In descriptive epidemiology, diseases are classified according to the variables of person, place, and time.
 - a) Describe the above variables (10 Marks)
 - b) Describe public health surveillance (10 Marks)

THE END