

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF HUMAN  
NUTRITION AND DIETETICS**

**HNDS 371: NUTRITION EPIDEMIOLOGY**

**STREAMS: BSC. (HUMAN NUTRITION AND DIETETICS)**

**TIME: 2 HOURS**

**DAY/DATE: TUESDAY 19/12/2023**

**11.30 A.M. – 1.30 P.M.**

**INSTRUCTIONS:**

- Answer **ALL** questions
- Do not write anything on the question paper
- **No** use of mobile phones or any other unauthorized materials
- Write your answers legibly and use your time wisely

**SECTION A: MULTIPLE CHOICE QUESTIONS [ONE MARK EACH] [20 MARKS]**

1. Epidemiologic measure provides the following types of information
  - A. Frequency of disease or condition
  - B. Strength of the relationship between exposure and disease
  - C. Association between exposure and disease
  - D. All of the above
2. Nutrition epidemiologists judge the evidence to establish possible causes of a health outcome, they consider.
  - A. Evidence that the exposure of interest has appeared before the outcome
  - B. The estimated strength of association between an exposure and the outcome
  - C. Evidence showing that reeducation in the exposure level will reverse the risk of the outcome
  - D. All of the options listed above
3. 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. Dietary intake is not an exposure because individuals make a choice about what they eat
  - C. An exposed individual has a greater risk of disease
  - D. High body mass index is a risk factor for a range of health conditions, therefore, it cannot be treated as a single exposure
4. Constant presence of disease in an area during a period of time is :
- A. Endemic
  - B. Epidemic
  - C. Sporadic
  - D. Pandemic
5. Prevention of the emergence or development of a risk factor is a type of:
- A. Primary prevention
  - B. Primordial prevention
  - C. Secondary prevention
  - D. Tertiary prevention
6. 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 a lower risk of developing diabetes.
  - B. The tea drinkers have a 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.
7. Subjects are classified according to their exposure to a factor of interest and then are observed over time to document the incidence of disease in what type of study
- A. Prospective cohort study
  - B. Retrospective cohort study
  - C. Cross-sectional study

- D. Case-control study
8. A longitudinal or prospective study is also referred to as an
- A. Ecological study
  - B. Cross-sectional study
  - C. Cohort study
  - D. Observational study
9. Randomized controlled trials provide strong evidence that an observed effect is due to the intervention (the assigned exposure). The reason is that;
- A. The exposure level and outcome are measured at the same time
  - B. When participants are randomized, many characteristics and possible confounding factors are likely to be evenly distributed in the groups
  - C. The study participants are volunteers and therefore motivated to take part in the study
  - D. It is easier to measure the outcome variable with great precision in randomized controlled trials compared to other study designs
10. The prevalence of a disease is estimated from:
- A. Cross-sectional study
  - B. Cohort study
  - C. Randomized controlled trial
  - D. Case-control study
11. Health education on early diagnosis and treatment is
- A. Primary prevention
  - B. Secondary prevention
  - C. Tertiary prevention
  - D. Primordial prevention
12. A disease that occurs rarely and without regularity is said to be:
- A. Sporadic
  - B. Endemic
  - C. Epidemic
  - D. Pandemic

13. A randomized control trial was found to be effective against a disease and then it was incorporated in a hospital. What do you expect to happen
- A. Decrease of incidence
  - B. Increase in incidence
  - C. Decrease of prevalence
  - D. Increase in prevalence
14. In a quasi-experimental study there is no:
- A. No control
  - B. No randomization
  - C. Both control and randomization
  - D. Neither control and randomization
15. A study that compares the prevalence of suspected causal factors between those with and without disease is a/an:
- A. Ecologic study
  - B. Cohort study
  - C. Experimental study
  - D. Case-control study
16. What term is defined as the number of old cases of a disease over a certain period of time?
- A. Epidemiology
  - B. Morbidity rate
  - C. Incidence
  - D. Prevalence
17. Vitamin A deficiency causes:
- A. Night blindness
  - B. Xerophthalmia
  - C. Bitot's spot
  - D. All of the above
18. The 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
19. The comparison of diseases experienced in different populations is expressed in the form of?
- A. Scale
  - B. Intensity
  - C. Rates
  - D. Magnitude
20. Epidemiological measures of effect assess the \_\_\_\_\_ between an exposure and outcome
- A. Strength of the reversibility
  - B. Strength of association
  - C. Strength of the causal mechanism
  - D. Strength of a confounding factor

**SECTION B: SHORT ESSAY QUESTIONS [30 MARKS]**

1. Explain the following terms as used in nutrition epidemiology. [4 marks]
  - i. Risk factor
  - ii. Population screening.
2. Highlight four (4) advantages of cross-sectional studies when establishing disease diet relationships [4 marks]
3. Outline four (4) factors that should be considered when selecting the most appropriate research design during diet-disease epidemiologic research [4 marks]
4. State four (4) roles of nutrition epidemiologist in the modern society[4 marks]
5. Highlight four (4) characteristics of a good screening test. [4 marks]
6. Distinguish between case-control studies and randomized controlled trials as used in nutrition epidemiology. [4 marks]
7. Explain four (4) measures for controlling epidemics. [4 marks]
8. Explain two (2) sources of data on morbidity and mortality [2 marks]

**SECTION C: LONG ESSAY QUESTIONS [20 MARKS]**

9. A screening test was done in a population of 4000 people with a disease prevalence of 10%. The test result confirmed that 140 people who had the disease were positive as well as 40 persons who did not have the disease. [12 marks]
- i. Summarize this information in a 2 x 2 contingency table. [4 marks]
  - ii. Calculate the sensitivity of the screening method. [2 marks]
  - iii. Calculate the specificity the screening method. [2 marks]
  - iv. Calculate the positive predictive value. [2 marks]
  - v. Calculate the negative predictive value. [2 marks]
10. With examples, discuss the different levels of disease prevention. [8 marks]
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