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(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

SCHOOL OF NURSING MIDWIFERY AND PARAMEDICAL SCIENCE UNIVERSITY MAIN UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR

BACHELOR OF SCIENCE IN MEDICAL SOCIAL WORK THIRD YEAR SECOND TRIMESTER

COURSE CODE: NMS 325
COURSE TITLE: INTRODUCTION TO EPIDEMIOLOGY

DATE: WEDNESDAY 12TH APRIL 2023 **TIME: 3PM-6PM**

INSTRUCTIONS TO CANDIDATES

All questions are compulsory
Mobile phones not allowed in the examination room
DURATION: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This paper consists of five (5) printed pages. Please turn over.

PART I: MULTIPLE CHOICE QUESTIONS –MCQs (20 MARKS)

1. In which study we can obtain the relative risk of disease?
   a) Case study
   b) Cohort study
   c) Case-control study
   d) Experimental study
2. How does vertical transmission occur?
   a) Through mosquitoes
   b) Through direct contact
   c) Through droplets
   d) Through placenta
3. Major foundation of epidemiologic approach
   a) Asking question and making comparison
   b) Rate and ratio
   c) Measurement of mortality
   d) Relative risk
4. Oral administration of Albendazole (deworming tablet) periodically to school children is an example of
   a) Primordial prevention
   b) Primary prevention
   c) Secondary prevention
   d) Tertiary prevention
5. Which of the following is a characteristic of an epidemic?
   a) Limited to a specific geographic region
   b) Affecting a small group of people
   c) Sporadic occurrence over time
   d) Increase in the number of cases over time
6. What is the difference between incidence and prevalence?
   a) Incidence refers to the total number of cases of a disease in a population, while prevalence refers to the number of new cases in a given period.
   b) Incidence refers to the number of new cases of a disease in a population, while prevalence refers to the total number of cases in a population.
   c) Incidence refers to the number of deaths due to a disease in a population, while prevalence refers to the number of cases that have been cured.
   d) Incidence refers to the total number of cases of a disease in a population, while prevalence refers to the number of people at risk of the disease.
7. Which of the following is a measure of association used in epidemiology?
   a) Odds ratio
   b) Correlation coefficient
   c) Mean
   d) Standard deviation

8. What is the purpose of a case-control study?
   a) To determine the incidence rate of a disease in a population
   b) To determine the prevalence of a disease in a population
   c) To compare the frequency of an exposure in cases and controls
   d) To assess the effectiveness of a treatment for a disease
9. A study that follows a group of individuals over time to determine the incidence of disease is called:
   a) A cross-sectional study
   b) A case-control study
   c) A cohort study
   d) An experimental study
10. A sensitivity of 95% and a specificity of 90% means that:
   a) 5% of people with the disease will test negative, and 10% of people without the disease will test positive
   b) 95% of people with the disease will test positive, and 90% of people without the disease will test negative
   c) 5% of people without the disease will test positive, and 10% of people with the disease will test negative
   d) 95% of people without the disease will test negative, and 90% of people with the disease will test positive
11. Which of the following diseases is primarily transmitted through droplet transmission?
   a) HIV
   b) Malaria
   c) Influenza
   d) Dengue
12. Which of the following is a common mode of foodborne disease transmission?
   a) Airborne transmission
   b) Vector-borne transmission
   c) Direct contact transmission
   d) Oral-fecal transmission
13. Which of the following measures represents the proportion of people with a disease who die from that disease?
   a) Incidence rate
   b) Prevalence rate
   c) Case fatality rate
   d) Attack rate
14. Which of the following measures represents the proportion of people who are exposed to a disease and become infected?
   a) Incidence rate
   b) Prevalence rate
   c) Case fatality rate
   d) Attack rate

15. Which of the following measures is used to compare the risk of a disease in one group to the risk of the disease in another group?
    a) Relative risk
    b) Odds ratio
    c) Attributable risk
    d) Population attributable risk
16. Which of the following is a limitation of prevalence as a measure of disease occurrence?
    a) It doesn't provide information about the risk of developing the disease
    b) It is difficult to calculate
    c) It doesn't take into account the duration of the disease
    d) It doesn't provide information about the severity of the disease
17. Validity can be defined as:
    a) The degree to which an instrument measures what it is supposed to measure.
    b) The degree to which results are consistent on a repeat measurement
    c) A measure of the degree or strength of association between two variables
    d) Concerned with measuring the frequency of new cases with reliability
18. Reliability can be defined as:
    a) The degree to which an instrument measures what it is supposed to measure
    b) The degree to which results are consistent
    c) A measure of the degree or strength of association between two variables
    d) Concerned with measuring the frequency of new cases with reliability
19. In epidemiology research, If the relative risk is greater than 1.0, the group with the suspected risk factor:
    a) Have a lower incidence rate of the disorder.
    b) Have a higher incidence rate of the disorder.
    c) Is having no relationship with the risk factor.
    d) None of the above
20. In an outbreak of cholera in a village of 2,000 population, 20 cases have occurred and 5 died. Case fatality rate is:
    a) 1%
    b) 0.25%
    c) 5%
    d) 25%

PART II: SHORT ANSWER QUESTIONS (40 MARKS)

1. Explain the levels of prevention, citing relevant examples in each (10 Marks)
2. State four types of indirect modes of disease transmission (4 marks)
3. Explain the principles of screening according to World Health Organization (WHO)- (8 marks)

4. Define a case control study design and give 2 advantages and 2 disadvantages of a case control study (5 marks)
5. The following table gives the results of a screening test for diabetes compared to a confirmatory evaluation (oral glucose tolerance test).

	True diagnosis	
Test result	Diabetic	Not Diabetic
Positive	220	75
Negative	30	675

6. A)Calculate the sensitivity of this screening test for diagnosing diabetes (3 marks)

   B) Calculate the specificity of this screening test for diagnosing diabetes (3 marks)

7. Describe the Epidemiologic triangle/triad (7marks)

PART III: LONG ANSWER QUESTIONS (40 MARKS)

1. Identify and describe the stages in the natural history of a disease (20 marks)

2a) Explain the three types of surveillance Giving 2 advantages and 2 disadvantages of each (12 marks)

2b. Define herd immunity and state conditions that must be met for herd immunity to be successful (5 marks)