



MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS 2022/2023 ACADEMIC YEAR THIRD YEAR FIRST TRIMESTER

SCHOOL OF PURE, APPLIED AND HEALTH SCIENCES BACHELOR OF SCIENCE IN NURSING

COURSE CODE: NUR 3102-1

COURSE TITLE: EPIDEMIOLOGY AND DEMOGRAPHY

DATE: 19/4/2023

TIME: 0830-1130 HRS

INSTRUCTION TO CANDIDATES

Section A: Multiple Choice Questions. Answer ALL Questions

Section B: Short Answer Questions. Answer ALL Questions

Section C: Long Answer Questions. Answer Question ONE and any other ONE question.

This paper consists of 6 printed pages. Please turn over.

SECTION A: MULTIPLE CHOICE QUESTIONS. (20 MARKS)

1. Virulence of a disease is indicated by:
 - A. Proportional mortality rate
 - B. Specific mortality rate
 - C. fatality ratio
 - D. Morbidity rate
2. Residents of three villages with three different types of water supply were asked to participate in a study to identify cholera carriers. Because several cholera deaths had occurred in the recent past, virtually everyone occurred in the time submitted to examination. The proportion of carriers in each village who were carriers was computed and compared. The study is a:
 - A. Cross-sectional study
 - B. Case-control study
 - C. Concurrent-cohort study
 - D. Noon-concurrent case control study
3. Study of a person who has already contacted the disease is called:
 - A. Case control
 - B. Cohort
 - C. Control cohort
 - D. Longitudinal
4. Public health surveillance does NOT consist on the following step;
 - A. Systematic collection
 - B. Analysis
 - C. Planning
 - D. Interpretation
5. The following is usually expressed as percentage;
 - A. Rate
 - B. Nominator
 - C. Ratio
 - D. Proportion
6. Measurement of disease, disability or death and converting this information in to rates and ratio is defined as;
 - A. Specificity
 - B. Screening
 - C. Frequency
 - D. Sensitivity
7. Select the correct statement concerning retrospective and prospective studies:
 - A. Retrospective studies are less subject to misclassification of outcome status compared to prospective studies

- B. Retrospective studies are less subject to misclassification of exposure status compared to prospective studies
 - C. Retrospective studies are usually less costly to conduct compared to prospective studies
 - D. Relative risks can't be calculated in retrospective studies
8. 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%
9. Measure of the frequency of occurrence of death in a defined population during a specified interval is called;
- A. Crude death rate
 - B. Mortality Rate
 - C. Death ratio
 - D. Mortality
10. Epidemiological methods can be categorized as follow:
- A. Descriptive, cohort and case control
 - B. Descriptive, cross sectional and experimental
 - C. Descriptive, prospective and experimental
 - D. Descriptive, Analytical and experimental
11. In epidemiological triad environmental factors can be classified as;
- A. Physical
 - B. Chemical
 - C. Social
 - D. Biological
12. Which of the following ratio provide us an estimate of risk in case control study;
- A. Odd ratio
 - B. Sex ratio
 - C. Disease ratio
 - D. Dependency ratio
13. In study if we are selecting every seventh subject it comes under which of the following sampling method?
- A. Stratified Sampling
 - B. Quota Sampling
 - C. Systematic Sampling
 - D. Purposive Sampling
14. Systematic errors produced by your sampling procedure is known as;
- A. Sampling bias

- B. Sampling errors
 - C. Non sampling errors
 - D. Random error
15. The profile of single patient is reported in detail by one or more clinicians is called as follow;
- A. Case control study
 - B. Case Series
 - C. Investigation
 - D. Case Report
16. In which of the following study we compare one group among whom the problem is present and another group where problem is absent?
- A. Case control study
 - B. Case Series
 - C. Cohort study
 - D. Case Report
17. Which of the following is a part of continuum of natural history of the disease?
- A. Stage of health promotion
 - B. Stage of prevention
 - C. Stage of Recovery
 - D. Stage of sampling
18. The following are also known as retrospective studies
- A. Cohort studies
 - B. Descriptive studies
 - C. Experimental studies
 - D. Case control studies
19. A state of disorder that results from communication ONLY by direct contact is termed as;
- A. Infectious disease
 - B. Contamination
 - C. Epidemic
 - D. Contagious disease
20. The following is NOT a basic measurement in epidemiology;
- A. Rate
 - B. Nominator
 - C. Ratio
 - D. Proportion

SECTION B: SHORT ANSWER QUESTIONS. (40 MARKS)

1. Discuss four roles of an epidemiological nurse- **8 marks**
2. Explain two uses of proportions in epidemiology. - **4 marks**

3. Define the type of study that best matches the description. – **5 marks**
- This study is based upon exposure status.
 - This study is used with a small, well-defined population.
 - This study uses the odds ratio to calculate relevant data.
 - This type of study is also known as a survey.
 - This study compares groups of people to determine a cause of a disease.
4. About bias:
- Define the term - **1 marks**
 - Discuss the two types of bias- **8 marks**
5. Calculating the risk ratio in an outbreak of Varicella (chicken pox) in Uganda in 1946, Varicella was diagnosed in 18 of 152 vaccinated children compared with 3 of 7 unvaccinated children.
- Draw 2 x 2 table to show the data- **4 marks**
 - Calculate the risk ratio among vaccinated children and unvaccinated children- **4 marks**
6. Discuss three Demographic surveillance-**6 marks**

SECTION C: LONG ANSWER QUESTIONS (40 MARKS)

QUESTION ONE IS COMPULSORY, THEN CHOOSE EITHER QUESTION 2 OR 3.

1. The association between low to moderate alcohol consumption and the risk of developing gastric cancer among men of certain ages was investigated. Of 1626 exposed and 1840 unexposed men, 97 and 71, respectively, fell ill during the course of study. Smoking was considered a potential confounder in the study. A subdivision was therefore made into smokers and non-smokers and the results are shown in the table below:

	Non smokers		Smokers	
	Exposed	Unexposed	Exposed	Unexposed
Disease	19	46	78	25
No disease	609	1478	920	291
Total	628	1524	998	316

- Calculate the risk ratio for exposed men (low to moderate alcohol consumption) versus unexposed men (no alcohol consumption):
Among non-smokers and among smokers **[8 marks]**
- Elaborate on the study design used in this study? **[4marks]**
- Explain 4 limitations of this study design **[8 marks]**

2. A study was conducted among patients visiting at Narok County Hospital for evaluation of possible Tuberculosis. They were all screened by a sputum smear for TB. Out of 595 patients who had chronic (over 2 weeks) cough, 75 tested positive for TB and 525 tested negative. If 65 and 515 tested positive and negative respectively by the second test.
- Construct a 2X2 table for this data **[4 marks]**.
 - Calculate the: sensitivity and specificity of a sputum smear **(8mark)**;
 - Discuss four consequences of a false negative screening result **[8 marks]**
3. Morbidity is the extent of illness, injury or disability in a defined population
- Explain the three terms related to morbidity- **6 marks**
 - Discuss the applications of morbidity statistics- **14 marks**

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