MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

MAIN

2018/2019 ACADEMIC YEAR

SECOND YEAR SECOND SPECIAL/SUPPLEMMENTARY EXAMINATION

FOR THE BACHELOR OF SCIENCE IN MEDICAL PHYSIOTHERAPY/ HEALTH PROFESSIONS EDUCATION

COURSE CODE: HPE 222

COURSE TITLE: MEDICAL EPIDEMIOLOGY

DATE: Wednesday 16th October 2019   **TIME: 2: 00- 5:00 PM**

INSTRUCTIONS TO CANDIDATES:
ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS.

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

▶

1. The study of how disease rates vary among different population groups defines?
   - A. Infectious disease
   - B. Case-control study
   - C. Epidemiology
   - D. Hypothesis
2. Which one is not an example of signs and symptoms of iron deficiency anemia
   - A. Sores around the mouth
   - B. Soreness in the tongue
   - C. Cravings for non-food items
   - D. Cold hands and feet
3. In 1945 there were 1000 men who worked in a factory painting on watches. The incidence of bone cancer in these women was compared with that of 1000 women who worked as telephone operators in 1975. Twenty of the painters and four of the telephone operators developed cancer between 1945 and 1975. This study is an example of a:
   - A. Experimental study
   - B. Case series
   - C. Clinical trial
   - D. Cohort study
4. All of the following are true of odds ratio except:
   - A. It is the only measure of risk that can be obtained directly from a case-control study
   - B. It can be calculated without data on rates (as in case-control study)
   - C. It is the ratio of incidence in exposed divided by incidence in non-exposed
   - D. It is an estimate of relative risk
5. 10 cases of food poisoning had been reported in hospital, 2 out of these developed mild gastrointestinal symptoms, 4 developed moderate dehydration but recovered and 2 succumbed to the disease. The characteristics of the organism of food poisoning that produces the severest form of the disease is:
   - A. Pathogenicity
   - B. Virulence
   - C. Infectivity
   - D. Communicability
6. What can a researcher use the literature to achieve?
   - A. They can demonstrate their competence by referring to prominent writings in the field
   - B. They develop their version of the literature in such a way as to show and to led up to the contribution they will be making in their own project or article
   - C. All of the above

D. They can identify a gap or problem in the literature that corresponds to research questions

7. Confounding is a particular challenge in nutritional epidemiology because:
    A. Different dietary components are correlated with each other, making it difficult to separate their effects
    B. People change their diets over time
    C. It is difficult to measure people's diets accurately in large studies
    D. There are no good methods to adjust for confounding in nutritional studies

8. Use of folic acid to prevent congenital malformation should be best initiated?
    A. During 1st trimester of pregnancy
    B. During the 2nd trimester of pregnancy
    C. During the 3rd trimester of pregnancy
    D. Before conception

9. In epidemiological context, what is the population at risk?
    A. The proportion of a population that engage in risky behaviors
    B. The group of people that may experience the outcome we want to study
    C. A group of people participating in a study that may be harmful to them
    D. The population group with the highest relative risk of disease

10. Which of the following statements about exposures is true?
    A. Exposure refers to contact with some risk factor that may be harmful to 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

11. Calculate the body mass index (BMI) for a patient whose height is 1.75 m and whose weight is 99 kg.
    A. 29
    B. 39
    C. 32
    D. 43

12. Vitamin B_{12} deficiency results in
    A. Large red blood cells
    B. Small and pale red blood cells
    C. Normal-sized red blood cells
    D. No red blood cells

13. In an outbreak of cholera in a village of 2000 population, 20 cases have occurred and 5 died. Case fatality rate is:

A. 1%

B. 0.025%

C. 5%

D. 0.25%

14. Which of the following factors play a key role in likelihood of infectious disease acquisition?
    a. Genetic profile
    b. Human behavior
    c. Environmental conditions
    d. All of the above

15. Virulence is the:
    a. Ability to cause clinical disease
    b. Ability to cause severe disease
    c. The ability to evoke an immune response
    d. All of the above
    e. a. and b. above

16. The basic code of ethical research (respect for persons, beneficence, and justice) was first established by the:
    a. Nuremberg Code
    b. Declaration of Helsinki
    c. CIOMS
    d. Belmont Report

17. In which 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

18. The following table gives the results of a screening test for diabetes compared to a confirmatory evaluation (oral glucose tolerance test).(**Answer question 18 and 19 using this table**)

	True diagnosis		
Test results	Diabetic	Not Diabetic	Total

Positive	34	20	54
Negative	116	9830	9946
Total	150	9850	10000

The sensitivity of this screening test for diagnosing diabetes is:

    A. 23%

    B. 29%

    C. 63%

    D. 99%

19. The most important element of ethical research on human subjects is:

    A. Beneficence

    B. Justice

    C. A methodologically sound study design

    D. Informed consent

20. Choose the most appropriate explanation on "Prevalence rate":

    A. the number of patients who have the disease at a particular time, divided by the population at risk of having the disease at that time.

    B. the number of new cases of a diseased in a population over a period of time.

    C. not useful for developing HIV/AIDS control programme.

    D. useful for developing Avian flu control programme.

SECTION B: SHORT ANSWER QUESTIONS (40 Marks)

Instructions

- The section has a total of Ten (10) short answer questions (SAQs), carrying a maximum of forty (40) marks total.
- Answer all the questions
- Write your answers on the provided university examination booklet

1. Define the following terms as used in epidemiology

    i.   Prevalence

    ii.   Distribution

    iii.   Frequency

iv.   Herd immunity

2. Briefly describe reasons why epidemiology is often described as the basic science of public health 4MKS

3. Differentiate between quantitative and qualitative epidemiologic studies   4MKS

4. Identify the basic principles of ethics that guide studies dealing with human subjects 4MKS

5. Highlight the advantages and disadvantages of cohort studies   4MKS

6. Give any EIGHT classifications of communicable diseases (4mks)

7. State any four roles of epidemiology(4mks)

8. Define Agent and Host as used in the epidemiological TRIAD(4mks)

9. Differentiate case control studies and cohort studies(4mks)

10. Give two advantages and two disadvantages of cross sectional studies(4mks)

LONG ANSWER QUESTIONS (40 Marks)

Instructions

- The section has TWO (3) long answer questions (LAQs), totaling to a maximum of forty (40) marks
- Answer Any two questions
- Write your answers on the provided university examination booklet

9. The preventive advantages of eating fish have reported in numerous studies. A recent cohort study reported that not eating fish increased the risk for stroke. The table below shows the results of the study:

		DISEASE STATUS		
		Cases of stroke	Non cases of stroke	TOTAL
	Never	82	1549	1631

Eating fish	Almost daily	23	779	802
Total		105	2328	2433

Determine:

i.	Incidence of disease in the exposed	2mk
ii.	Incidence in the disease in the exposed	2mk
iii.	Incidence of the disease in the population	2mk
iv.	Attributable risk	2mk
v.	Attributable risk percent	2mk
vi.	Population attributable risk	2mk
vii.	Relative risk	2mk
viii.	Odds ratio	2mk
ix.	Population attributable risk percent	2mk

10. A study looking at breast cancer in women compared cases with non- cases, and found that 75/100 cases did not use calcium supplements compared with 25/100 of the non-cases.
    a) Develop a table to display the data. (5mks)
    b) Calculate the odds of exposure in cases and non-cases. (5mks)
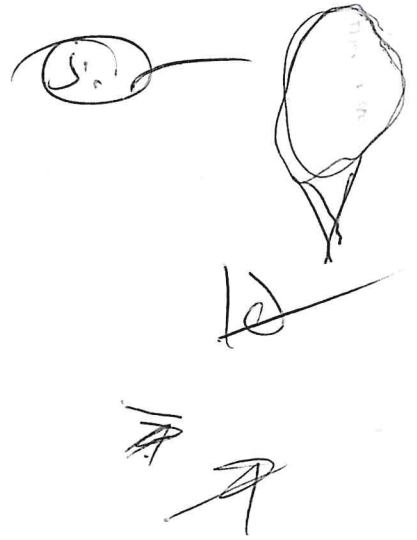   c) Calculate the odds ratio using the cross-product ratio. (5 mks)

11. An upsurge of some mysterious disease has been established in your area of operation as public health officer. Discuss the steps you would use investigate and manage the outbreak   20mks

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Reg HPE/G/03/2015

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Masters of Science in
Health Professions (Medical) Education

Speculation →

Reflection

0721-898915 →