(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

SCHOOL OF NURSING MIDWIFERY AND PARAMEDICAL SCIENCES

MAIN UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF SCIENCE IN GLOBAL HEALTH AND TRAVEL MEDICENE

COURSE CODE: NCG 126
COURSE TITLE: INTRODUCTION TO EPIDEMIOLOGY

DATE: TUESDAY 19TH APRIL 2022 **TIME: 8AM-11AM**

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 six (6) printed pages. Please turn over.

PART I: MULTIPLE CHOICE QUESTIONS (20 MARKS)

1. A mosquito bites a person who subsequently develops a fever and abdominal rash. What type of transmission would this be?
    a) Mechanical vector transmission
    b) Biological vector transmission
    c) Direct contact transmission
    d) Vehicle transmission
2. Cattle are allowed to pasture in a field that contains the farmhouse well, and the farmer's family becomes ill with a gastrointestinal pathogen after drinking the water. What type of transmission of infectious agents would this be?
    a) biological vector transmission
    b) direct contact transmission
    c) indirect contact transmission
    d) vehicle transmission
3. A study in which children are randomly assigned to receive either a newly formulated vaccine or placebo is an example of which type of study?
    a) Experimental
    b) Observational
    c) Cohort
    d) Case-control
4. The epidemiologic triad of disease causation refers to?
    a) Agent, host, environment
    b) Time, place, person
    c) Source, mode of transmission, susceptible host
    d) John Snow, Robert Koch, Kenneth Rothman
5. A key feature of a cross-sectional study is that:
    a) It usually provides information on prevalence rather than incidence
    b) It is limited to health exposures and behaviors rather than health outcomes
    c) It is more useful for descriptive epidemiology than it is for analytic epidemiology

d) It is synonymous with survey

6. In which one of the following circumstances will the prevalence of a disease in the population increase?
   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.
7. A blanket from a child with chickenpox is likely to be contaminated with the virus that causes chickenpox (Varicella-zoster virus). What is the blanket called?
   a) fomite
   b) Host
   c) Pathogen
   d) Vector
8. The mode of transport of an infectious agent through the environment to a susceptible host is called
   a) Carrier
   b) Vehicle
   c) Vector
   d) Reservoir
9. A longitudinal or prospective study is also referred to as
   a) Ecological study
   b) Cross sectional study
   c) Cohort study
   d) Observational study
10. 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%

11. All are true about case control studies, except:
    a) Relative risk can be calculated
    b) Less expensive
    c) Suitable for rare diseases
    d) Backward study
12. The degree of consistency with which an instrument measures the attribute it is supposed to be measuring is called:
    a) Validity
    b) Reliability
    c) Sensitivity
    d) Objectivity
13. The degree to which an instrument measures what it is supposed to be measuring is its:
    a) Validity
    b) Internal consistency
    c) Sensitivity
    d) Equivalence
14. A disease that is maintained in a population at a steady, low-level frequency is
    a) Sporadic
    b) Endemic
    c) Epidemic
    d) Pandemic
15. In an epidemiological context, what is the population at risk?
    a) The proportion of a population that engage in risky behaviours.
    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.
16. A systematic method for continuous monitoring of diseases in a population, in order to be able to detect changes in disease patterns and then to control them is:

a) Conditional probability
b) Screening ,
c) Prevalence
d) Surveillance

17. The number of new cases that occur within a specific population within a defined time interval is:
    a) Point Prevalence
    b) Incidence
    c) Period prevalence
    d) Lifetime Prevalence
18. The inherent or acquired immune resistance offered by populations to the prevalence of a disease in a community is referred to as?
    a) Acquired Immunity
    b) Various Immunity
    c) Herd Immunity
    d) Vaccinated Immunity
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. Who is an active carrier?
    a) A person exposed to and harbors pathogen, has not shown any symptoms
    b) A person exposed to and harbors disease-causing organism (pathogen) and is in the recovery phase but is still infectious
    c) Individual exposed to and harbors a disease-causing organism. May have recovered from the disease
    d) one that spreads or harbors an infectious organism

PART II: SHORT ANSWER QUESTIONS (40 MARKS)

1. State three (3) ways in which epidemics can be classified (6 marks)
2. Explain four main uses of epidemiology (8marks)
3. State five (5) main ways in which prevalence of a disease may be decreased (5 marks)
4. Explain the following terms as used in assessing the validity of a screening test (6 marks)
   a) Sensitivity
   b) Specificity
   c) positive predictive value
5. Among 60 people attending a 12-month diet control program in city A, 50 test HIV negative at the start of the program in January 2017. At the end of the program in December 2017, 3 of the 50 participants tested positive for HIV. Calculate the incidence rate (4 marks)
6. With an aid of a well-illustrated diagram describe the Epidemiologic triangle/triad (6marks)
7. State five advantages of conducting a cross-sectional study (5 marks)

PART III: LONG ANSWER QUESTIONS (40MARKS)

1. Explain the three types of surveillance (12 marks)

1b. Define herd immunity and state conditions that must be met for herd immunity to be successful (8 marks)

2. Discuss levels of disease prevention, citing relevant examples in each (20 Marks)