NATIONAL UNIVERSITY OF LESOTHO

FACULTY OF HEALTH SCIENCES

FHS3301: INTRODUCTION TO EPIDEMIOLOGY

AUGUST 2023 **MARKS 100** **TIME: 3 HOURS**

INSTRUCTIONS

- Answer all questions.
- Number your answers correctly
- Answer each question on a new page.
- Write legibly.

Question 1 **20 Marks**

Define the following concepts as used in the field of epidemiology.

1.1. Epidemiology	2 Marks
1.2.Descriptive Epidemiology	2 Marks
1.3. Epidemic	2 Marks
1.4. Pandemic	2 Marks
1.5. Endemic	2 Marks
1.6. Morbidity	2 Marks
1.7. Randomized Controlled Field Trial	4 Marks
1.8. Randomized Controlled Clinical Trial	4 Marks

Question 2 **(10 Marks)**

For the following MULTIPLE CHOICE items, select the most correct. Do not re-write the statement and the answer option, simply answer as follows. E,**g 1.1. d**

2.1. Where a group of people with a specific condition receive a treatment and their progress is compared with a second group receiving a placebo or alternative treatment, this is known as epidemic_____?

a. Case- Control Study
b. Cohort Study
c. Community Trial
d. Clinical Trial

2.2. The epidemiologic triad of disease causation refers to; (Choose one best answer)

a. Agent, Host, Environment
b. Time, Place, Person
c. Source, mode of transmission, susceptible host
d. John Snow, Robert Koch, Kenneth Rothman

2.3. The primary difference between an experimental and observational study is:

a. The investigator is “blinded” (prevented from knowing the subjects’ true exposure status until the end of the study) in an experimental study but not in an observational study.
b. The investigator controls the subject’s exposure in an experimental study but not in an observational study.
c. The investigator controls the subject’s outcome in an experimental study but not in an observational study.
d. Experimental studies are conducted with animals; observational studies are conducted with humans.

2.4. A study in which children are randomly assigned to receive either a newly formulated vaccine or the currently available vaccine, and are followed to monitor for side effects and effectiveness of each vaccine, is an example of which type of study?

a. Experimental
b. Observational
c. Cohort
d. Case-control
e. Clinical trial

2.5. A cohort study differs from a case-control study in that:

a. Subjects are enrolled or categorized on the basis of their exposure status in a cohort study but not in a case-control study.
b. Subjects are asked about their exposure status in a cohort study but not in a case-control study.
c. Cohort studies require many years to conduct, but case-control studies do not.
d. Cohort studies are conducted to investigate chronic diseases, case-control studies are used for infectious diseases.

2.6. Which of the following studies might be carried out to help health services plan for future services?

a. Cohort Study
b. Cross Sectional Study
c. Case-control study
d. Community trail

2.7. Which of the following is a description for descriptive epidemiology?

a. Examining the incidence of disease in relation to person, place, and time
b. Identifying the associations between disease and causes.
c. Intervention to change exposure to the factor being studied.
d. Actions to reduce exposure to factors which impact on health.

2.8. When an infectious disease outbreak occurs, it is described in terms of its distribution in a population. Write down the correct definition.
An infection which spreads worldwide,_____?

a. Pandemic
b. Epidemic
c. Endemic
d. Cluster

2.9. An infection which exists in and affects a group or population most or all of the time (e.g colds),_____?

a. Pandemic
b. Epidemic
c. Endemic
d. Cluster

2.10. An infection which is widespread through the population and occurs at a specific time,____?

a. Pandemic
b. Epidemic
c. Endemic
d. Cluster

Question 3 **10 Marks**

3.1.1. Which term best describes the pattern of occurrence of the three diseases noted below in a single area? **Endemic, Outbreak, Pandemic, Sporadic**

a. _____Disease 1: usually 40-50 cases per week; 48 cases last week
b. _____Disease 2: Fewer than 10 cases per year; 1 case last week
c. _____Disease 3: Usually no more than 2-4 cases per week; 13 cases last week

3.1.2. Classify each of the following studies as **experimental, observational/cohort, observational/case-control, or not an epidemiologic study**.

_____ a. Vietnam Experience Study: Subjects were several thousand soldiers stationed in Vietnam from 1969-1971 and several thousand soldiers stationed in Europe from 1969-1971. In the mid-1980's, investigators determined and compared the death rate and prevalence of illness in both groups.

_____ b. Subjects were 59 patients with end-stage cancer. All were given a new treatment. The monthly survival was charted over 2 years.

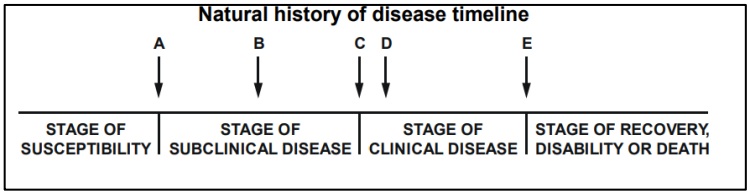
_____ c. Subjects were persons with laboratory-confirmed COVID-19, and one healthy friend of each. All subjects were asked about their consumption of pork and other meat products.

_____ d. Subjects were children enrolled in a health maintenance organization. At 18 months, each child was randomly given one of two types of vaccine against Haemophilus influenzae. Parents were asked to record any side effects on a card, and mail it back after 2 weeks.

3.1.3. For each of the following, identify the appropriate letter from the timeline in Figure 1.1 representing the natural history of disease.

a. ____ Onset of symptoms
b. ____ Usual time of diagnosis
c. ____ Exposure

Figure 1.1



Question 4 **(20 Marks)**

4.1.1 Discuss what is meant by a double-binding controlled trial and their contribution to understanding the distribution of diseases. **10 Marks**

4.1.2 Identify the main types of epidemiological studies and their contribution to understanding of distribution of diseases. **10 Marks**

Question 5 **(40 Marks)**

To answer the following 2 questions, use your knowledge on **Measles disease**.

5.1.1 Using your knowledge of chain of infection on an infectious disease, discuss the transmission of measles disease. **10 Marks**

5.1.2 Discuss disease progression of Measles disease in terms of; **10 Marks**

a. Susceptibility
b. Subclinical Disease
c. Clinical Disease
d. Recovery, Disability or Death

5.1.3 Use the Agent-Host-Environment model to describe the role of the human immunodeficiency virus (HIV) in AIDS. **10 Marks**

a. Agent:
b. Host:
c. Environment:

5.1.4 Imagine you are presenting your **experimental study protocol** for a committee that is giving funding for research.

a. Outline key ethical considerations in your study and what you will do to ensure safety **10 Marks.**