



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF HEALTH AND APPLIED SCIENCES**

**DEPARTMENT OF HEALTH SCIENCES**

<b>QUALIFICATION:</b> BACHELOR OF ENVIRONMENTAL HEALTH SCIENCES, BACHELOR OF HUMAN NUTRITION & BACHELOR OF SCIENCE IN HEALTH INFORMATION SYSTEMS MANAGEMENT	
<b>QUALIFICATION CODE:</b> 08BEHS/08BOHN/07BHIS	<b>NQF LEVEL:</b> 6
<b>COURSE CODE:</b> EPIDEMIOLOGY 2A	<b>COURSE CODE:</b> EPD 611S
<b>DATE:</b> JUNE 2019	<b>PAPER:</b> THEORY
<b>DURATION:</b> 3 HOURS	<b>MARKS:</b> 100

<b>FIRST OPPORTUNITY EXAMINATION QUESTION PAPER</b>	
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<b>MODERATOR:</b>	MRS ROSWITHA MAHALIE

<b>INSTRUCTIONS</b>
<ol style="list-style-type: none"><li>1. Answer <b>ALL</b> the questions.</li><li>2. Write clearly and neatly.</li><li>3. Number the answers clearly.</li></ol>

**PERMISSIBLE MATERIALS**

1. SCIENTIFIC CALCULATOR

**THIS PAPER CONSISTS OF 7 PAGES (INCLUDING THIS FRONT PAGE)**

## SECTION A (30 MARKS)

### QUESTION 1

**[10 MARKS]**

Evaluate the statements in each numbered question and select the most appropriate answer or phrase from the given possibilities. Next to the question number, fill in the appropriate letter of the correct statement/phrase on your ANSWER SHEET. *Example: 1.11. C*

- 1.1. In the definition of epidemiology, “distribution” does not refer to: [1]
- A. Why
  - B. Who
  - C. When
  - D. Where
- 1.2. In the definition of epidemiology, “determinants” generally includes the following but NOT: [1]
- A. Agents
  - B. Causes
  - C. Control measures
  - D. Risk factors
- 1.3. The hallmark feature of an analytic epidemiologic study is: [1]
- A. Laboratory confirmation of the diagnosis
  - B. Use of an appropriate comparison group
  - C. Publication in a peer-reviewed journal
  - D. Statistical analysis using logistic regression
- 1.4. A propagated epidemic is usually the result of what type of exposure? [1]
- A. Point source
  - B. Continuous common source
  - C. Intermittent common source
  - D. Person-to-person
- 1.5. Determine what type of data or information is missing from the case definition below; [1]
- “Measles Case Definition (Suspect): Any person residing in Mozambique with a temperature greater than 38°C (100°F) and a generalized rash”*
- A. Time
  - B. Person
  - C. Clinical signs and symptoms
  - D. Place

- 1.6. Public health surveillance can be described primarily as which of the following? [1]
- A. A method to monitor occurrences of public health problems.
  - B. A program to control disease outbreaks.
  - C. A system for collecting health-related information.
  - D. A system for monitoring persons who have been exposed to a communicable disease.
- 1.7. Which statement below best describe the concept of epidemiologic transition? [1]
- A. Change from non-exposed to exposed status during a prospective study
  - B. Development of the study disease during follow-up
  - C. Reduction in the proportion of deaths due to infectious diseases in the first part of the 20th century
  - D. Reversal of the risk estimate after adjustment for a strong confounder
- 1.8. In a country with a population of 16 million people, 175,000 deaths occurred during the year ending December 31, 2018. These included 45,000 deaths from tuberculosis (TB) in 135,000 persons who were sick with TB. Assuming that the population remained constant throughout the year; What was the case-fatality rate (CFR) from TB during 2018? [1]
- A. 1.09%
  - B. 33.3%
  - C. 23.3%
  - D. 15.6%
- 1.9. Prevalence survey conducted from January the 1<sup>st</sup> through to December 31, 2018 identified 680 new cases of HIV/AIDS in a city of 2 million persons. The incidence rate of HIV/AIDS in this population has historically been 1 per 4,000 persons each year. What is the incident rate of HIV/AIDS per 100,000 persons in 2017?? [1]
- A. 34 new cases of HIV/AIDS per 100,000 persons
  - B. 24 new cases of HIV/AIDS per 100,000 persons
  - C. 23 news cases HIV/AIDS per 100,000 persons
  - D. 29 new cases HIV/AIDS of per 100,000 persons
- 1.10. Which of the following sets below correctly classify the following as referring to (A) distribution or (B) determinant. [1]
- Identify the extent of a public health problem
  - Monitor disease and other health related events over time
  - Identify those who are at greatest risk for disease, injury, disability, or death.
  - Identify the source of a disease outbreak in a given community
- A. A, A, A, B
  - B. B, A, A, B
  - C. B, A, B, A
  - D. B, A, A, B

## **QUESTION 2**

**[10 MARKS]**

Assess the following statements and decide whether they are TRUE or FALSE. Write only the number of the question and next to it True for a True statement and False for a statement.

**Example: 2.11 TRUE.**

- 2.1 Public health surveillance is only conducted by public health agencies. [1]
- 2.2 Food-borne illness resulting from eating contaminated food is a typical example of a vehicle borne infection. [1]
- 2.3 Underreporting is not a problem for detecting outbreaks of notifiable diseases because the proportion of cases reported tends to remain relatively stable over time. [1]
- 2.4 Once a case definition for an outbreak investigation has been established, it should not be changed. [1]
- 2.5 Descriptive epidemiology is essential for “characterizing the outbreak” by time, place, and person, but has little bearing on the analytic epidemiology. [1]
- 2.6 The health-related state or event may have more than one “sufficient cause” [1]
- 2.7 Secondary prevention aim to reduce the negative impact of established disease by restoring normal functioning and reducing related complications. [1]
- 2.8 Wearing seatbelts can be a method of primary prevention of road traffic injuries. [1]
- 2.9 One of the weakness of case-control studies is loss to follow up of study subjects. [1]
- 2.10 Raised glucose and cholesterol levels can be categorised as metabolic risk factors for cardiovascular diseases. [1]

**QUESTION 3****[10 MARKS]**

Match the statement in column 1 to the corresponding concept(s) in column 2. *Example 3.12 A*  
Each correct answer earns one (1) mark.

Column 1			Column 2
3.1	Compares groups and make inferences about exposure outcome relationship	A	Incidence rate
3.2	Resistance to an attack by a disease to which a large proportion of the group is immune	B	Pathogenicity
3.3	Ability of an agent to induce/cause a clinical disease in a susceptible host	C	John Snow
3.4	Isolated and cultivated <i>Vibrio cholerae</i>	D	Virulence
3.5	Screening and treatment	E	Analytical study
3.6	All cases that developed the disease were in person exposed to the water or food in question	F	Secondary prevention
3.7	Identified modes of transmission and incubation times for cholera	G	Herd immunity
3.8	Tobacco use, Alcohol use and Physical inactivity	H	Immunity
3.9	Measures of disease frequency	I	Common-vehicle exposure
3.10	The disease is habitually present in human population	J	Robert Koch
		K	Primary prevention
		L	Endemic disease
		M	Modifiable risk factors
		N	Descriptive study
		O	Prevalence rate

## **SECTION B (40 MARKS)**

### **QUESTION 4**

**[10 MARKS]**

Define the following terms and concepts.

- 4.1 Eradication. [2]
- 4.2 Case definition. [2]
- 4.3 Sub-clinical disease. [2]
- 4.4 Vector-borne transmission. [2]
- 4.5 An outbreak. [2]

### **QUESTION 5**

**[30 MARKS]**

Read each questions carefully and on your ANSWER SHEET, next to the question number, please write the full answer to the questions.

- 5.1 Enumerate four major stages in the disease process. [4]
- 5.2 Elaborate with appropriate examples on the concept of prevention with reference to the main three levels of prevention. [6]
- 5.3 Distinguish between live (attenuated) vaccines and killed (inactivated) vaccines. [4]
- 5.4 In 2010, there were 2,900 new cases of breast cancer diagnosed among women in Alabama and 200 new cases diagnosed among women in Alaska. Based on these data, is it accurate to say that the incidence rate of breast cancer is higher in Alabama than in Alsaka? Explain your answer. [2]
- 5.5 Briefly, explain how infectious and non-infectious diseases relate to communicable and non-communicable diseases and conditions. [6]
- 5.6 Explain the primary distinction between the following;
  - 5.6.1 Epidemiology and Clinical Medicine. [4]
  - 5.6.2 Descriptive and Analytic epidemiological studies. [4]

## **SECTION C (30 MARKS)**

### **QUESTION 6**

**[30 MARKS]**

Read each question completely, and on your ANSWER SHEET, next to the question number, please write the full answer to the questions.

- 6.1 Mention two individuals who contributed to the birth of vital statistics. [2]
- 6.2 Discuss how globalization relates to epidemiological transition. [3]
- 6.3 Briefly explain how administrative factors can influence the Hospital Associated Infection (HAI). [5]
- 6.4 Describe the first ten (10) steps of an outbreak investigation. [20]

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**TOTAL: 100 MARKS**