

## Epidemiology Exam 1

### SECTION I: MULTIPLE CHOICE QUESTIONS 20 MARKS

1. For an infectious disease to occur there must be an interaction between
    - A. Behavioural factors and genetic factors
    - B. The agent and the vector
    - C. The host and the agent
    - D. The vector and the environment
  
  2. Which of the following activities is beyond the scope of activities undertaken by epidemiologists?
    - A. Analyzing cost-effectiveness
    - B. Establishing modes of disease transmission
    - C. Preventing disease
    - D. Rationing health care resources
  
  3. Herd immunity refers
    - A. The prevention of disease transmission to susceptible individuals through acquired immunity in others
    - B. Genetic resistance to species-specific disease
    - C. Immunity naturally acquired in a population
    - D. The high levels of antibody present in a population following an epidemic
- During a given year, 12 cases of typhoid are detected in a population of 70,000 living in one of the provinces in country X. Many more community members have mild symptoms of the disease, such as persistent headache.
4. Of the detected cases, 7 result in death. The ratio of 7/12 therefore represents?
    - A. The case fatality ratio
    - B. The crude death rate
    - C. The pathogenicity
    - D. The standard mortality ratio
  
  5. To report the incidence rate of the disease, it would be necessary to know
    - A. Nothing more than the data provided
    - B. The mid-year population at risk
    - C. The duration of the clinical illness
    - D. The age distribution of the population
  
  6. To report the prevalence of the disease, it would be necessary to know

- A. The duration of the illness
- B. The number of cases at a given time
- C. The rate at which new cases developed
- D. The number of losses to follow-up

8. An outbreak of a disease should be reported to the district or Ministry of Health

- A. if the diagnosis is uncertain
- B. if the disease is infectious
- C. if the disease is serious
- D. under all circumstances

9. Western Kenya reported cases of an unexplained respiratory tract illness with a high case fatality ratio. Which of the following is most reliably true regarding this event?

- A. It is an epidemic
- B. It is an example of active surveillance
- C. It is appropriately investigated by Kenya Medical Research Institute (KEMRI)
- D. It is not an outbreak, since the condition may be endemic

10. Cases of Streptococcal group A disease are reported in a defined population. Which of the following types of information would be most helpful for determining whether these cases represent a disease outbreak?

- A. The clinical features and methods of diagnosis
- B. The exact location and timing of disease onset
- C. The incubation period and pattern of disease transmission
- D. The usual disease patterns and reporting practices

11. An official from the Ministry of Health Disease Surveillance Division visits outpatient clinics and emergency rooms to determine the number of cases of post exposure prophylaxis for rabies. The official's action is an example of

- A. Active surveillance
- B. Case finding
- C. Outbreak investigation
- D. screening

During the Kenyan Referendum campaigns, a prominent politician invited a dozen or so of his campaign team members to a formal luncheon in his residential house in the city. The politician realizing the importance of his visitors, decided to out-source a respectable catering unit. Fried chicken was more popular than the highlights from the campaign activities. Within 24 hours, 11 of the 17 diners experienced abdominal pain, vomiting, and diarrhea. The host, who happened not to like meals because they were served with fruit salad that represented his opponents' campaign symbol, felt fine. In fact, he went for a stroll in the compound while the guests were eating. Of the 11 symptomatic guests, 4 had fever, and 7 did not; 5 had elevated WBC and 6 did not; 6 ate roasted goat meat and 5 did not; 9 ate fried chicken and 2 did not; and 1 went for surgery for acute cholecystitis resulting from an impacted stone in the common bile duct. Of the 11 symptomatic guests, 10 recovered within 3 days; the exception is the Minister who underwent surgery and

recovered over a longer period of time. The guests at this luncheon had shared no other meals at any time recently.

12. The phenomenon described

- A. Is a coincidence until proved otherwise
- B. Is a disease outbreak
- C. Is attributable to bacterial infection
- D. Is not an outbreak because the usual pattern of disease is not known

13. The attack rate is

- A. 4/11
- B. 11/16
- C. 5/11
- D. 11/17

14. An early priority in investigating the phenomenon would be to

- A. Stop serving the meal
- B. Define a case
- C. Perform stool tests
- D. Submit food samples to the laboratory

## SECTION II: SHORT ANSWER QUESTIONS 40 MARKS

Define the following: (5 marks)

- i. Determinants:
- ii. Applied Epidemiology:
- iii. Contact:
- iv. Host:
- v. Infectivity:

2 State the reason why epidemiology is considered the basic science of public health. (3 marks)

3 Three types of public health surveillance: (9 marks)

4 How to check and control confounding in experimental studies. (9 marks)

5 Five ways in which observer bias in case control and cohort epidemiologic studies are minimized. (7 marks)

6. What is a cohort study? Give examples of major cohort studies. (6 marks)

## SECTION III: LONG ANSWER QUESTIONS – 40 MARKS

1. a) Transmission of infectious disease in a community involve interaction of?  
b) using the above factors in (a) explain the prevention measures for each factor in relation to HIV/AIDS transmission
  
2. i) What is the criteria of evaluating a screening test?  
  
ii) Explain the principles for screening programmes