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COMMUNITY HEALTH LEVEL 6

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HE/OS/CH/CC/03/6

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Apply Epidemiology in Community Health

July/August 2025

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TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

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WRITTEN ASSESSMENT

Time: 3 HOURS

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INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. Attempt **ALL** questions in section **A**.
3. Attempt **any THREE** questions in section **B**.
4. Marks for each question are indicated in the brackets.
5. Candidates are provided with a separate answer booklet
6. Do not write on the question paper.

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This paper consists of FIVE (5) printed pages
Candidates should check the question paper to ascertain that all pages
are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Attempt ALL the questions in this section.

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1. In County X, malaria disease had both high incidence and high prevalence in 2002. However, in 2003, it had a low incidence but continued to have a high prevalence. Enumerate TWO differences between incidence and prevalence measures of risk as deduced from the above epidemiological statement. [4 Marks]

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2. The Kenya Medical Research Institute (KEMRI) has engaged you as an epidemiologist to help interpret data collected from individuals with and without the diseases to identify past exposures. Highlight THREE possible data interpretations you might encounter when calculating the odds ratio. [3 Marks]

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3. When considering the appropriate methods of disease control in the community, it is essential to understand the various modes of transmission of infectious agents. State FOUR modes of disease transmission for infectious agents. [4 Marks]

4. As the team leader for the nutrition program aimed at under-5-year-olds, pregnant women, and lactating women in the county, you are supposed to gather materials for nutritional status screening. Suggest SIX items to assemble for the team conducting nutritional screening for this demographic. [3 Marks]

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5. During the implementation of a diabetes screening program, one encounters several challenges that perhaps could have been avoided during the planning stage. Enumerate FOUR challenges that may be encountered during the implementation stage of the diabetes screening program. [4 Marks]

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6. Community Health Promoters play a crucial role in conducting population screening. However, this team requires capacity building on the ethical considerations related to population screening. State FOUR ethical considerations in population screening that you would train the team on. [4 Marks]

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7. Integrated Disease Surveillance and Response (IDSR) is a system for reporting communicable diseases and conditions. In Kenya, the Ministry of Health identified approximately 13 notifiable diseases. Pinpoint THREE criteria the Ministry of Health used to identify these diseases. [3 Marks]

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8. Understanding of epidemiological triad guides in outbreak investigation and disease control.

Highlight THREE areas the Community Health Assistant should address using the epidemiological triad understanding [3 Marks]

9. Disease surveillance programs and population screening need assessments enable the identification of major risk factors and causes of ill health. Identify FOUR biological risk factors associated with host-related ill health. [4 Marks]

10. A survey conducted in Bomo County on HIV/AIDS among 234 Commercial Sex Workers generated the following cumulative data on cases over six months from January to June: January – 8, February – 14, March – 26, April – 28, May – 42, and June – 42. Calculate and interpret the period prevalence of HIV/AIDS among the Commercial Sex Workers in Bomo County. [4 Marks]

11. The completeness and quality of the data from passive surveillance system for disease surveillance depends on several factors. Highlight FOUR factors that determine the quality of data from passive surveillance system. [4 Marks]

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SECTION B (60 MARKS)

Attempt Any THREE (3) Questions in This Section

12. You conducted a disease outbreak investigation at Panda Nguo village after several people in your jurisdiction were hospitalized due to consuming meat from an uninspected, sick domesticated animal in May 2025. The cases presented with severe diarrhea, stomachache, and generalized body rashes.

a) Explain FOUR reasons for conducting the above disease outbreak investigation.

[8 Marks]

b) Using the SIX steps of disease outbreak investigation, generate a report for presentation to the Ministry of Health and other stakeholders.

[12 Marks]

13. An outbreak of an unknown infectious disease has recently been reported in County K, where infected individuals complain of stomach aches after drinking water from an unprotected spring. Nine sampled patients presented with varying incubation periods of 23, 27, 15, 19, 12, 22, 17, 25, and 23 days.

a) Develop a null and an alternative hypothesis for the above unknown infectious disease.

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[2 Marks]

b) Expound on FOUR characteristics that a developed hypothesis must meet.

[8 Marks]

c) Using the data of the nine sampled patients with unknown infectious diseases, calculate the standard deviation.

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[10 Marks]

14. The Ministry of Health is addressing the rising cases of lifestyle diseases among individuals aged 50 and older in Kenya. You are responsible for coordinating epidemiological research on this issue and orienting a team of healthcare workers on suitable study designs and population sampling methods to use.

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a) Explain THREE modalities of categorization of the study designs you would orient the team on.

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[12 Marks]

b) Elaborate on FOUR rationales for choosing a suitable population sampling method to use in the above case.

[8 Marks]

15. It has recently been reported to you that there is an outbreak of cholera in Kyoto village, where 456 people attended a wedding. After conducting an outbreak investigation, you

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realized that 74 out of 348 people who ate at the wedding had cholera and only 6 of those who didn't eat at the wedding but attended tested positive.

a) Tabulate the above data and from it, calculate the disease Relative Risk and interpret your answer. [10 Marks]

b) Explain FIVE possible cholera prevention and control interventions you would recommend to curb future similar occurrences. [10 Marks]

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