



UNIVERSITI KUALA LUMPUR  
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

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**FINAL EXAMINATION**  
**OCTOBER 2025 SEMESTER**

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COURSE CODE : HDB31303  
COURSE TITLE : COMMUNITY HEALTH AND EPIDEMIOLOGY  
PROGRAMME NAME : BACHELOR OF BIOMEDICAL SCIENCE (HONOURS)  
DATE : 24 JANUARY 2026  
TIME : 9:00AM - 11:00AM  
DURATION : 2 HOURS



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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of TWO sections.
4. Answer ALL questions for Section A.
5. Section B consist of four questions. Answer THREE (3) questions only.
6. Please write your answer on the answer booklet provided.
7. Please answer all questions in English only.
8. Please answer MCQ/EMQ questions using OMR sheet.  *Tick if applicable*
9. Refer to the attached Formula/ Appendies.  *Tick if applicable*

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THERE ARE 15 PAGES OF QUESTIONS INCLUDING THIS PAGE

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**SECTION A (Total: 40 marks)**

**Answer ALL questions.**

**Please use the answer booklet provided.**

1. Which Greek word in the term 'Epidemiology' means 'on or upon'?
  - A. Logos
  - B. Anti
  - C. Epi
  - D. Demos
  
2. The primary focus of community health practice is to \_\_\_\_\_.
  - A. diagnose diseases in individuals
  - B. provide specialised clinical treatment
  - C. prevent disease and promote health at the population level
  - D. prescribe medication for chronic illness
  
3. Community health refers to \_\_\_\_\_.
  - A. medical treatment provided in hospitals
  - B. emergency care delivered during disasters
  - C. health efforts aimed at improving the well-being of populations
  - D. health services focused on individual patients
  
4. Epidemiology is BEST defined as the study of \_\_\_\_\_.
  - A. laboratory identification of pathogens
  - B. individual patient diagnosis
  - C. the distribution and determinants of health-related states in populations
  - D. genetic inheritance patterns

5. Incidence risk refers to \_\_\_\_\_.
- A. the probability of developing disease during a specified period
  - B. the severity of disease outcomes
  - C. the case fatality rate
  - D. the proportion of existing cases in a population
6. The epidemiological measure used to compare disease occurrence between exposed and unexposed groups is \_\_\_\_\_.
- A. mortality rate
  - B. incidence density
  - C. prevalence
  - D. relative risk
7. In epidemiology, the term 'population at risk' refers to \_\_\_\_\_.
- A. individuals receiving treatment
  - B. individuals susceptible to developing the disease at the start of observation
  - C. individuals currently ill
  - D. the total population
8. Which of the following is a descriptive epidemiological variable?
- A. relative risk
  - B. odds ratio
  - C. place
  - D. attributable risk

9. All of the following are uses of epidemiology EXCEPT
- A. guiding public health policy
  - B. identifying disease patterns
  - C. providing individual clinical diagnosis
  - D. evaluating health interventions
10. A cohort study is BEST described as a study that \_\_\_\_\_.
- A. follows exposed and unexposed groups over time
  - B. measures exposure and disease at one time
  - C. compares populations at one point in time
  - D. begins with disease status
11. A city council decides to ban all plastic straws in public cafeterias to reduce environmental plastic pollution and protect community hygiene. Using Beattie's Typology, this intervention is classified as \_\_\_\_\_.
- A. collective and negotiated
  - B. individual and negotiated
  - C. collective and authoritative
  - D. individual and authoritative
12. A hospital implements a new policy to provide free nicotine replacement therapy (NRT) alongside mandatory counselling for all admitted patients who smoke. According to Tannahill's Model, which overlapping domain does this intervention BEST represent?
- A. Disease prevention and health protection
  - B. Health education, disease prevention, and health protection
  - C. Health education and disease prevention
  - D. Health education and health protection

13. Based on medically certified maternal deaths in Malaysia (2023), the leading cause of maternal death was \_\_\_\_\_.
- A. ectopic pregnancy
  - B. sepsis
  - C. hypertensive disorders of pregnancy
  - D. postpartum haemorrhage
14. Infant mortality rate refers to the number of infant deaths \_\_\_\_\_.
- A. per 100,000 population
  - B. per 100 women of reproductive age
  - C. per 1,000 live births
  - D. per 100 pregnancies
15. Low birth weight is MOST commonly associated with \_\_\_\_\_.
- A. increased infant morbidity and mortality
  - B. adult chronic disease
  - C. improved neonatal survival
  - D. delayed child development only
16. Peer influence during adolescence commonly affects \_\_\_\_\_.
- A. height
  - B. immune response
  - C. genetic traits
  - D. health-related behaviours

17. Risk-taking behaviour during adolescence is influenced by \_\_\_\_\_.
- A. reduced emotional response
  - B. ongoing brain development
  - C. fully developed impulse control
  - D. limited social exposure
18. Which of the following BEST describes a health promotion intervention?
- A. diagnosing disease
  - B. treating illness
  - C. prescribing medication
  - D. enabling people to increase control over their health
19. Environmental health focuses primarily on \_\_\_\_\_.
- A. treatment of environmental injuries
  - B. individual lifestyle choices
  - C. genetic susceptibility
  - D. factors in the environment that affect human health
20. Which of the following is an example of a physical environmental health hazard?
- A. bacteria in drinking water
  - B. pesticide exposure
  - C. excessive noise in the workplace
  - D. poor dietary intake

21. Chemical hazards in environmental health MOST commonly include \_\_\_\_\_.
- A. poor housing design
  - B. loud sounds
  - C. heavy metals and pesticides
  - D. temperature extremes
22. Which of the following BEST describes occupational health?
- A. enforcement of labour laws
  - B. promotion and protection of workers' health in the workplace
  - C. management of hospital workers
  - D. treatment of occupational injuries only
23. An occupational hazard refers to \_\_\_\_\_.
- A. any workplace factor that can cause injury or illness
  - B. exposure outside the workplace
  - C. lifestyle behaviour at work
  - D. work-related stress only
24. Which of the following is an example of a biological occupational hazard?
- A. noise
  - B. radiation
  - C. poor lighting
  - D. exposure to infectious agents

25. Nutrition is important to community health because it \_\_\_\_\_.
- A. affects only childhood growth
  - B. replaces medical treatment
  - C. determines genetic traits
  - D. influences disease prevention and overall health status
26. Malnutrition refers to \_\_\_\_\_.
- A. starvation alone
  - B. deficiency, excess, or imbalance of nutrients
  - C. excess food intake only
  - D. inadequate calorie intake only
27. Communicable diseases are BEST defined as diseases that \_\_\_\_\_.
- A. can be transmitted from one person to another
  - B. occur suddenly
  - C. are genetic in origin
  - D. affect only specific age groups
28. Which of the following is an example of a non-communicable disease?
- A. tuberculosis
  - B. dengue fever
  - C. measles
  - D. diabetes mellitus

29. Secondary prevention is BEST described as \_\_\_\_\_.
- A. detecting disease at an early stage
  - B. reducing disability
  - C. preventing exposure to risk factors
  - D. providing palliative care
30. Tertiary prevention focuses on \_\_\_\_\_.
- A. reducing complications and disability
  - B. eliminating risk factors
  - C. health promotion
  - D. early diagnosis
31. Health education primarily aims to \_\_\_\_\_.
- A. modify physical environments
  - B. provide medical treatment
  - C. increase knowledge and influence behaviour
  - D. enforce laws
32. The societal change approach to health promotion focuses on \_\_\_\_\_.
- A. modifying policies and environments
  - B. increasing health knowledge alone
  - C. individual decision-making only
  - D. clinical management

33. Health indicators are used to \_\_\_\_\_.
- A. replace surveys
  - B. evaluate population health status
  - C. diagnose individuals
  - D. prescribe medication
34. Mortality rate is an indicator that reflects \_\_\_\_\_.
- A. disease incidence
  - B. disease severity
  - C. frequency of death in a population
  - D. health service utilisation
35. Morbidity refers to \_\_\_\_\_.
- A. presence of illness or disease in a population
  - B. death due to disease
  - C. severity of illness only
  - D. hospital admission rates
36. Surveillance in public health is BEST described as \_\_\_\_\_.
- A. one-time data collection
  - B. laboratory testing only
  - C. continuous and systematic data collection
  - D. clinical diagnosis

37. Which of the following is a purpose of disease surveillance?
- A. to monitor disease trends
  - B. to treat patients
  - C. to replace surveys
  - D. to diagnose individuals
38. Community participation in health programmes is important because it \_\_\_\_\_.
- A. replaces health professionals
  - B. improves acceptability and sustainability
  - C. reduces professional involvement
  - D. delays programme implementation
39. The epidemiological measure that BEST reflects the burden of disease in a community is \_\_\_\_\_.
- A. incidence
  - B. prevalence
  - C. odds ratio
  - D. relative risk
40. Primary prevention aims to \_\_\_\_\_.
- A. rehabilitate affected individuals
  - B. reduce disease complications
  - C. detect disease early
  - D. prevent the occurrence of disease

**SECTION B (Total: 60 marks)**

Answer **THREE (3)** questions only.

Please use the answer booklet provided.

**Question 1**

In an industrial community, all individuals diagnosed with lung cancer were found to have had long-term exposure to carcinogenic substances that cause damage to lung tissue. Within this group, some individuals were cigarette smokers, some had occupational exposure to asbestos, and some experienced both exposures, while others had only one of these exposures. Despite these exposures being present in the community, not all individuals developed lung cancer.

This pattern suggests that lung cancer does not arise from a single cause but results from the interaction of a necessary cause with additional contributing factors.

- (a) Using the causal pie model, explain how lung cancer develops in this community. In your answer, identify the necessary cause, explain how the contributing factors described in the scenario act as component causes, and support your explanation with a clearly labelled causal pie diagram.

(12 marks)

- (b) Using the causal pie model described above, explain how public health interventions can reduce lung cancer occurrence in this community, even if the necessary cause cannot be completely removed

(6 marks)

- (c) Explain **TWO (2)** major factors that contribute to mortality among adolescents, with reference to smoking, vaping, violence, or unintentional injuries.

(2 marks)

**Question 2**

Epidemiology provides tools to measure associations between exposures and health outcomes, while community health interventions aim to improve population health through preventive and promotive strategies across different life stages.

- (a) Define health according to the World Health Organization (WHO).

(1 marks)

- (b) A case-control study was conducted to examine the association between receipt of the measles-mumps-rubella (MMR) vaccine and autism. The findings are summarised in the table below. Using the data provided, calculate the odds ratio (OR) for the association between MMR vaccination and autism, and interpret the result.

*Refer Below - Table1 : Association between MMR Vaccine and Autism .*

(6 marks)

Table 1: Association between MMR Vaccine and Autism

	Autism: Yes	Autism: No	Total
MMR vaccine: Yes	130	115	245
MMR vaccine: No	120	135	255
Total	250	250	500

- (c) State and explain THREE (3) major causes of death among toddlers (1-4 years).

(3 marks)

- (d) Discuss ONE (1) community health intervention approach that can be used to improve maternal and child health outcomes at the population level.

(10 marks)

**Question 3**

Community health is influenced by physical and social factors, and community-based processes play an important role in addressing shared health problems. Different life stages also have distinct health characteristics that shape population health outcomes.

- (a) Explain FOUR (4) physical factors that affect the health of a community.  
(8 marks)
- (b) Explain the definition and purpose of community organizing, and describe how it addresses different types of community health problems.  
(8 marks)
- (c) Explain TWO (2) factors (biological and/or social) that contribute to teenage pregnancy being a high-risk condition.  
(4 marks)

**Question 4**

Understanding disease causation models, substance use problems, and population characteristics is essential for effective community health planning.

- (a) Compare the communicable disease model and the multicausal disease model in explaining disease occurrence in the community.  
(10 marks)
- (b) Describe amphetamine-type stimulants (ATS) and explain their neurobiological impact.  
(6 marks)
- (c) State and explain FOUR (4) factors that affect population size and age structure.  
(4 marks)

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END OF EXAMINATION PAPER



