



UNIVERSITI KUALA LUMPUR
INSTITUTE OF MEDICAL SCIENCE TECHNOLOGY

FINAL EXAMINATION
OCTOBER 2025 SEMESTER

COURSE CODE : HDB31302
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



INSTRUCTIONS TO CANDIDATES

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*

THERE ARE 15 PAGES OF QUESTIONS INCLUDING THIS PAGE

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. Anti
 - B. Demos
 - C. Epi
 - D. Logos

2. The primary focus of community health practice is to _____.
 - A. prevent disease and promote health at the population level
 - B. diagnose diseases in individuals
 - C. provide specialised clinical treatment
 - D. prescribe medication for chronic illness

3. Community health refers to _____.
 - A. medical treatment provided in hospitals
 - B. health services focused on individual patients
 - C. health efforts aimed at improving the well-being of populations
 - D. emergency care delivered during disasters

4. Epidemiology is BEST defined as the study of _____.
 - A. genetic inheritance patterns
 - B. individual patient diagnosis
 - C. the distribution and determinants of health-related states in populations
 - D. laboratory identification of pathogens

5. The epidemiological measure that BEST reflects the burden of disease in a community is _____.
- A. odds ratio
 - B. prevalence
 - C. incidence
 - D. relative risk
6. The epidemiological measure used to compare disease occurrence between exposed and unexposed groups is _____.
- A. prevalence
 - B. relative risk
 - C. mortality rate
 - D. incidence density
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. the total population
 - D. individuals currently ill
8. Which of the following is a descriptive epidemiological variable?
- A. place
 - B. relative risk
 - C. odds ratio
 - 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. compares populations at one point in time
 - C. measures exposure and disease at one 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. individual and authoritative
 - B. collective and negotiated
 - C. individual and negotiated
 - D. collective 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. Health education, disease prevention, and health protection
 - B. Health education and disease prevention
 - C. Health education and health protection
 - D. Disease prevention and health protection

13. Based on medically certified maternal deaths in Malaysia (2023), the leading cause of maternal death was _____.
- A. postpartum haemorrhage
 - B. ectopic pregnancy
 - C. hypertensive disorders of pregnancy
 - D. sepsis
14. Infant mortality rate refers to the number of infant deaths _____.
- A. per 100,000 population
 - B. per 1,000 live births
 - C. per 100 women of reproductive age
 - D. per 100 pregnancies
15. Peer influence during adolescence commonly affects _____.
- A. health-related behaviours
 - B. height
 - C. immune response
 - D. genetic traits
16. Risk-taking behaviour during adolescence is influenced by _____.
- A. limited social exposure
 - B. reduced emotional response
 - C. ongoing brain development
 - D. fully developed impulse control

17. Which of the following BEST describes a health promotion intervention?
- A. enabling people to increase control over their health
 - B. prescribing medication
 - C. treating illness
 - D. diagnosing disease
18. Environmental health focuses primarily on _____.
- A. factors in the environment that affect human health
 - B. genetic susceptibility
 - C. individual lifestyle choices
 - D. treatment of environmental injuries
19. Which of the following is an example of a physical environmental health hazard?
- A. pesticide exposure
 - B. bacteria in drinking water
 - C. excessive noise in the workplace
 - D. poor dietary intake
20. Chemical hazards in environmental health MOST commonly include _____.
- A. loud sounds
 - B. poor housing design
 - C. temperature extremes
 - D. heavy metals and pesticides

21. Which of the following BEST describes occupational health?
- A. promotion and protection of workers' health in the workplace
 - B. enforcement of labour laws
 - C. management of hospital workers
 - D. treatment of occupational injuries only
22. An occupational hazard refers to _____.
- A. work-related stress only
 - B. any workplace factor that can cause injury or illness
 - C. exposure outside the workplace
 - D. lifestyle behaviour at work
23. Which of the following is an example of a biological occupational hazard?
- A. noise
 - B. exposure to infectious agents
 - C. poor lighting
 - D. radiation
24. Nutrition is important to community health because it _____.
- A. determines genetic traits
 - B. replaces medical treatment
 - C. affects only childhood growth
 - D. influences disease prevention and overall health status

25. Malnutrition refers to _____.
- A. excess food intake only
 - B. deficiency, excess, or imbalance of nutrients
 - C. starvation alone
 - D. inadequate calorie intake only
26. Communicable diseases are BEST defined as diseases that _____.
- A. affect only specific age groups
 - B. can be transmitted from one person to another
 - C. are genetic in origin
 - D. occur suddenly
27. Which of the following is an example of a non-communicable disease?
- A. tuberculosis
 - B. measles
 - C. diabetes mellitus
 - D. dengue fever
28. Primary prevention aims to _____.
- A. reduce disease complications
 - B. prevent the occurrence of disease
 - C. detect disease early
 - D. rehabilitate affected individuals

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

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 severity
 - B. health service utilisation
 - C. frequency of death in a population
 - D. disease incidence
35. Morbidity refers to _____.
- A. death due to disease
 - B. presence of illness or disease in a population
 - C. severity of illness only
 - D. hospital admission rates
36. Surveillance in public health is BEST described as _____.
- A. continuous and systematic data collection
 - B. one-time data collection
 - C. clinical diagnosis
 - D. laboratory testing only

37. Which of the following is a purpose of disease surveillance?
- A. to treat patients
 - B. to monitor disease trends
 - C. to replace surveys
 - D. to diagnose individuals
38. Community participation in health programmes is important because it _____.
- A. delays programme implementation
 - B. reduces professional involvement
 - C. replaces health professionals
 - D. improves acceptability and sustainability
39. Incidence risk refers to _____.
- A. the severity of disease outcomes
 - B. the probability of developing disease during a specified period
 - C. the case fatality rate
 - D. the proportion of existing cases in a population
40. Low birth weight is MOST commonly associated with _____.
- A. increased infant morbidity and mortality
 - B. delayed child development only
 - C. adult chronic disease
 - D. improved neonatal survival

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

