

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2024
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALISATION PAPER FOR PUBLIC HEALTH

Date	: October 5, 2024
Total Marks	: 100
Writing Time	: 150 minutes (2.5 hours)
Reading Time	: 15 minutes (prior to writing time)

GENERAL INSTRUCTIONS:

1. Write your Registration Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is to check the number of pages of Question Paper, printing errors, clarify doubts and to read the instructions. You are NOT permitted to write during this time.
3. This paper consists of **TWO SECTIONS**, namely SECTION A & SECTION B:
 - **SECTION A** has two parts: Part I - 30 Multiple Choice Questions
Part II - 2 Short Answer Questions
All questions under SECTION A are **COMPULSORY**.
 - **SECTION B** consists of two Case Studies. Choose only **ONE** case study and answer the questions of your choice.
4. All answers should be written on the Answer Booklet provided to you. Candidates are not allowed to write anything on the question paper. If required, ask for additional Answer Booklet.
5. All answers should be written with correct numbering of Section, Part and Question Number in the Answer Booklet provided to you. Note that any answer written without indicating the Section, Part and Question Number will NOT be evaluated and no marks will be awarded.
6. Begin each Section and Part on a fresh page of the Answer Booklet.
7. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
8. Use of any other paper including paper for rough work is not permitted.
9. **You must hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. This paper has **7 printed pages**, including this instruction page.

GOOD LUCK

SECTION A

PART I: Multiple Choice Questions [30 marks]

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. Which of the following is NOT a core function of public health?
 - a) Health promotion and disease prevention
 - b) Healthcare delivery
 - c) Surveillance and monitoring of health threats
 - d) Policy development to improve health outcomes

2. The World Health Organization (WHO) focuses on all of the following EXCEPT:
 - a) Eradicating infectious diseases
 - b) Promoting mental health awareness
 - c) Providing individual medical care
 - d) Monitoring global health trends

3. The Ottawa Charter for Health Promotion emphasizes the importance of:
 - a) Technological advancements in medicine
 - b) Creating healthy public policies
 - c) Focusing solely on individual behavior change
 - d) Limiting access to unhealthy foods and beverages

4. The Bradford Hill criteria are used to assess:
 - a) Causality between a suspected risk factor and a disease.
 - b) The effectiveness of an intervention.
 - c) The validity of a diagnostic test.
 - d) The generalizability of research findings.

5. The dependent variable in a research study is the one that is:
 - a) Measured or observed.
 - b) Manipulated by the researcher.
 - c) Both A and B.
 - d) Neither A nor B.

6. When conducting a literature review, the goal is to:
 - a) Find one perfect source to answer your research question.
 - b) Identify and critically evaluate existing research on your topic.
 - c) Summarize all the information you find
 - d) Focus only on the most recent research.

7. The definition of epidemiology includes all of the following EXCEPT;
 - a) Study of determinants of health-related events
 - b) Study of distribution of health-related events
 - c) Application to control public health problems
 - d) All of the above

8. Which of the following is NOT a measure of disease frequency?
- Incidence
 - Case fatality rate
 - Prevalence
 - Attack rate
9. The difference between the incidence and prevalence of a disease tells us about:
- The proportion of new cases in a population over time
 - The severity of the disease
 - The speed of disease transmission
 - The number of existing cases in a population
10. A study follows a group of individuals forward in time to assess risk factors for a specific disease. This is an example of which epidemiological study design?
- Case-control study
 - Cross-sectional study
 - Cohort study
 - Ecological study
11. A case-control study is most useful for:
- Determining the incidence of a disease.
 - Identifying potential risk factors for a disease.
 - Studying the natural history of a disease.
 - Evaluating the effectiveness of an intervention.
12. An odds ratio (OR) of 3.0 for exposure to a risk factor suggests:
- No association between exposure and disease.
 - A weak positive association.
 - A strong positive association.
 - A protective effect of exposure
13. When conducting health research, which principle ensures that a study measures what it is intended to measure?
- Reliability
 - Generalizability
 - Sensitivity
 - Validity
14. In a screening test, a high sensitivity means the test is good at identifying:
- True negative cases
 - True positive cases
 - False positive cases
 - False negative cases

15. A health education program focuses on teaching teenagers about the negative health consequences of smoking. This program is most aligned with which level of prevention?
- Tertiary Prevention
 - Secondary Prevention
 - Primary Prevention
 - Health Education is not considered prevention
16. When a large portion of a population is immune to a disease, it reduces the likelihood of susceptible individuals encountering infected individuals. This is known as:
- Herd immunity
 - Active immunity
 - Passive immunity
 - Specificity
17. Surveillance is an essential tool for:
- Identifying disease outbreaks.
 - Monitoring trends in disease burden.
 - Evaluating the effectiveness of public health interventions.
 - All of the above.
18. Which of the following best describes the difference between health promotion and disease prevention?
- Health promotion focuses on individual risk factors, while disease prevention focuses on entire populations.
 - Disease prevention is always more effective than health promotion.
 - Health promotion aims to prevent disease, while disease prevention focuses on early detection and treatment
 - There is no real difference between the two concepts.
19. Public health interventions to reduce childhood obesity might focus on:
- Increasing access to processed foods
 - Promoting physical activity in schools
 - Limiting regulations on fast food advertising
 - Encouraging sugary drinks as a source of energy
20. Which of the following is one disadvantage of passive public health surveillance system?
- It provides real-time data on disease outbreaks.
 - Underreporting of cases can occur.
 - It requires a significant investment of resources.
 - It is not well-suited for monitoring chronic diseases.
21. Effective communication strategies are essential for promoting healthy behaviors and reducing NCD risk. These strategies should be:
- Culturally appropriate and tailored to the target audience
 - Evidence-based and clear
 - Engaging and interactive
 - All of the above

22. A public health professional notices a cluster of foodborne illness cases in a specific town. This observation is most likely indicative of an:
- Sporadic case
 - Pandemic
 - Epidemic
 - Endemic disease
23. A country is obligated to notify WHO under the IHR of:
- Only public health emergencies of international concern (PHEICs).
 - Any case of a common infectious disease like influenza.
 - Any outbreak exceeding a specific threshold for a particular disease.
 - All cases of diseases subject to travel restrictions.
24. The primary purpose of an occupational safety and health program is to:
- Increase worker productivity
 - Reduce absenteeism due to illness
 - Prevent work-related injuries and illnesses
 - Improve company profits
25. What is a major public health concern associated with climate change?
- Increased risk of vector-borne diseases
 - Depletion of the ozone layer
 - Exposure to harmful ultraviolet radiation
 - All of the above
26. Bhutan's traditional medicine system, known as *Sowa Rigpa*, is:
- Gradually being phased out in favor of modern medicine
 - Integrated into the national healthcare system alongside modern medicine
 - Neglected due to lack of scientific evidence
 - Only practiced by religious figures
27. Bhutan's national lockdown strategy during the COVID-19 pandemic was primarily focused on:
- Isolating positive cases
 - Encouraging herd immunity
 - Restricting movement to limit transmission
 - Prioritizing economic activity
28. A veterinarian in Bhutan notices a recent increase in unusual cattle deaths. Which of the following actions is MOST appropriate?
- Report the outbreak to public health authorities for investigation
 - Ignore the outbreak as it is likely not a public health concern
 - Continue treating cattle with existing medications
 - Advise farmers to sell their cattle immediately

29. The EPI program in Ministry of Health Bhutan is an example of which public health strategy?
- Treatment of infectious diseases
 - Preventive healthcare
 - Health education campaigns
 - Hospital-based care
30. Bhutan is working towards achieving Universal Health Coverage (UHC). This means:
- Everyone has access to essential healthcare services without financial hardship.
 - Only citizens have access to healthcare services.
 - Main emphasis of focus is on preventive healthcare
 - Prioritizes specialized care over basic services.

PART II – Short Answer Questions [20 marks]

This part has Short Answer Questions. Answer ALL the questions. Mark for each sub-question is indicated in the brackets.

Questions 1.

What is the epidemiological triad, and how does it apply to understanding communicable diseases?

(6 marks)

Question 2.

Briefly explain the concept of contact tracing in the context of communicable disease control.

(3 marks)

Question 3.

Define and differentiate between the passive and active public health surveillance systems?

(2 marks)

Question 4.

List and briefly explain three strategies used NCD prevention and control?

(9 marks)

SECTION B: Case Study [50 marks]

Choose either CASE I OR CASE II from this section. Each case study carries 50 marks. Mark for each sub-question is indicated in the brackets.

CASE I

Health determinants and promotion are two sides of the same coin which work together to influence the overall health and well-being of individuals and communities. Health determinants influence health promotion activities. There are the various factors that influence a person's health status. By understanding and addressing the various determinants of health, and implementing effective health promotion strategies, we can create a society where everyone has the opportunity to live a healthy life.

Question 1.

Discuss the concept of the social determinants of health (SDOH) and how they influence population health outcomes. Provide specific examples of how SDOH can impact health disparities. **(20 marks)**

Question 2.

Explain the core principles of health promotion and provide examples of each. **(15 marks)**

Question 3.

Discuss the role of health communication in promoting healthy behaviors. How can health communication be tailored to different target audiences? **(15 marks)**

CASE II

Epidemiology and research are the cornerstones of public health. Epidemiology provides the foundation for public health action by identifying health problems and their causes. Public health research builds on this knowledge by developing and testing solutions to these problems. This combined approach allows public health professionals to target interventions effectively, leading to improved health outcomes for communities.

Question 1.

Explain the core principles of epidemiology and how they are used to investigate and control disease outbreaks. **(15 marks)**

Question 2.

Explain the role of epidemiology in public health research. Discuss how epidemiological studies can be used to inform interventions aimed at improving population health? **(15 marks)**

Question 3.

Identify an area of public health research that interests you with brief justifications. Explain how your research skills and knowledge could be applied to conduct a study and contribute to this field. **(20 marks)**

TASHI DELEK