

**ROYAL CIVIL SERVICE COMMISSION  
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2021  
EXAMINATION CATEGORY: TECHNICAL**

**PAPER III: SUBJECT SPECIALISATION PAPER FOR PUBLIC HEALTH**

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<b>Date</b>	: October 31, 2021
<b>Total Marks</b>	: 100
<b>Writing Time</b>	: 150 minutes (2.5 hours)
<b>Reading Time</b>	: 15 minutes (prior to writing time)

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**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 - 4 Short Answer QuestionsAll 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 **8 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. Public health surveillance includes all of the following activities, EXCEPT
  - a) Data collection
  - b) Data analysis
  - c) Data interpretation
  - d) Disease control
  
2. Current public health surveillance targets which one of the following?
  - a) Chronic diseases
  - b) Communicable diseases
  - c) Occupational hazards
  - d) All of the above
  
3. Data collected through which of the following methods is commonly used for surveillance?
  - a) Vital registration
  - b) Disease notifications
  - c) Population surveys
  - d) All of the above
  
4. Common uses and applications of public health surveillance include which of the following?
  - a) Detecting individual persons with the disease so that they can receive prompt and appropriate treatment.
  - b) Helping resource allocation for disease control.
  - c) Documenting changes in the incidence of the disease after a public health intervention.
  - d) All of the above.
  
5. Most common cause of reported mortality in Bhutan is
  - a) Heart disease
  - b) Alcohol liver disease
  - c) Road traffic accidents
  - d) Pneumonia
  
6. In the definition of epidemiology, “distribution” refers to
  - a) Who
  - b) When
  - c) Where
  - d) All of the above
  
7. In the definition of epidemiology, “determinants” generally includes all the following, EXCEPT
  - a) Agents
  - b) Causes
  - c) Control measures
  - d) Public Health actions

8. The hallmark feature of an analytic epidemiologic study is: (choose the best one)
- Use of an appropriate comparison group.
  - Laboratory confirmation of the diagnosis.
  - Publication in a peer-reviewed journal.
  - Statistical analysis using logistic regression.
9. A Representative sample of residents were telephoned and asked how much they exercise each week and whether they currently have (have ever been diagnosed with) heart disease. This study can be classified as
- Experimental
  - Observational cohort
  - Observational case-control
  - Observational cross-sectional
10. Dengue is transmitted to the people by
- the bite of a female anopheles mosquito that is infected with the dengue virus.
  - the bite of an Aedes mosquito that is infected with the dengue virus.
  - spread directly from person to person.
  - spread through drinking unclean water.
11. A study in which children are randomly assigned to receive a newly formulated vaccine or the currently available vaccine, and are followed to monitor for the side effects and effectiveness of each vaccine is an example of which type of study?
- Observational
  - Cohort
  - Case control
  - Clinical trial
12. The epidemiologic triad of disease causation refers to:
- Agent, host, environment
  - Time, place, person
  - Source, mode of transmission, susceptible host
  - John Snow, Robert Koch, Kenneth Rothman
13. What is the single most effective strategy for reducing the threat of infectious diseases?
- Immunizations
  - Hygiene education
  - Generating political willpower
  - Drug development
14. What statistical test is used to measure the relationship of two dichotomous variables? (2X2 table)
- Chi square
  - Correlation coefficient
  - Multiple regression analysis
  - Multiple logistic regression analysis

15. A factory worker has developed Pulmonary Fibrosis after decades of exposure to one of the pollutants in a cement factory. The most likely inhaled pollutants would be
- Silica
  - Tobacco smoke
  - Ozone
  - Wood dust
16. The numerator for calculating crude birth rate includes all
- Live births.
  - Births that survived to their first year of live.
  - Live births and still births.
  - None of the above.
17. The number of new occurrences of the disease in a population, over a period of time is called
- Prevalence
  - Point prevalence
  - Incidence
  - Burden of disease
18. Which of the following statements regarding infant mortality rate is correct?
- The numerator contains the number of neonates who died during the first month of life.
  - This is the ratio of neonatal deaths during the first week of life per 1000 live births.
  - This is the ratio of infant deaths during the first year of life per 1000 live births.
  - This is the ratio of infant deaths during the first year of live per 10,000 live births.
19. The term "iceberg phenomenon"
- is used to describe latent morbidity phenomena.
  - means diseases not presented to the health care delivery system for treatment.
  - means that medical care is delivered, although not for the actual diagnosis.
  - indicates diseases of unknown etiology.
20. After becoming infected by the HIV virus, a person can still test negative for HIV for up to
- 2 months
  - 4 months
  - 6 months
  - 1 year
21. The concept of Primary Health care was adopted at an international conference on health at Alma Ata in the year
- 1978
  - 1979
  - 1969
  - 1984

22. Which one of the following statements is/are the excerpts from the Alma Ata Declaration?
- Health is a fundamental human right.
  - Gross inequality on the health status of the people is politically, socially and economically unacceptable.
  - People have the right and duty to participate individually and collectively in the planning and implementation of their health care.
  - All of the above.
23. In comparing the numbers and rates of illness in a community, the rates are preferred for (choose best one)
- Conducting surveillance for communicable diseases.
  - Deciding how many doses of immune globulin are needed.
  - Estimating subgroups at highest risk.
  - Telling physicians which strain of influenza is most prevalent.
24. Severe disease caused by coronavirus is
- Severe Acute Respiratory Syndrome (SARS)
  - Middle East Respiratory Syndrome (MERS)
  - COVID 19
  - All of the above.
25. Bhutan has set the target of reducing maternal mortality ratio by the year 2030 to
- less than 70 per 100,000 live births.
  - less than 84 per 100,000 live births.
  - less than 75 per 100,000 live births.
  - less than 80 per 100,000 live births.
26. As per the latest HIV/AIDS report (Jan-Jul 2021) of the Ministry of Health, Bhutan, majority of the positive cases were detected through
- Contact tracing
  - Medical screening
  - Voluntary counselling and testing
  - Ante-Natal Screening
27. Bhutan aims to achieve WHO malaria elimination certification by the year
- 2022
  - 2025
  - 2030
  - 2023
28. What percentage of Gross Domestic Product (GDP) was the total expenditure on health for the financial year (FY) 2019-2020 in Bhutan?
- 3.2%
  - 5.7%
  - 7.3%
  - 4.5%

29. The important source of data for vital statistics is
- Morbidity
  - Mortality
  - Injury and disability
  - Outpatient health-care usage
30. Bhutan has eliminated iodine deficiency disorder as a public health problem since
- 2003
  - 2000
  - 1997
  - 2005

**PART II – Short Answer Questions [20 marks]**

**This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks. Mark for each sub-question is indicated in the brackets.**

**Question 1**

What is the full form of the following abbreviations used in medical field? (5x1=5 marks)

- RT-PCR
- COVID-19
- HPV
- H-Pylori
- ELISA

**Question 2**

Provide the date and month on which the following important days are observed. (5x1=5 marks)

- World Health Day
- World Tuberculosis Day
- International Women's Day
- World No Tobacco Day
- World Rabies Day

**Question 3**

Bhutan is committed to Sustainable Development Goals (SDG) targets to end the epidemics of AIDS by 2030. UNAIDS has set the global target to be achieved by 2030 as 90-90-90.

- What does the target 90-90-90 mean? (3x1=3 marks)
- List the common route/mode of transmission of HIV from one infected person to another. (2 marks)

**Question 4**

The following are examples of which type of prevention: Primary, Secondary or Tertiary Prevention? (5x1=5 marks)

- Cessation of smoking to prevent lung cancer.
- Early diagnosis and treatment of HTN to prevent stroke.
- Physical activity and dietary change to prevent non-communicable disease.
- Disability friendly environment and rehabilitation.
- Immunization for measles.

**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**

Tuberculosis is still one of the major communicable diseases in Bhutan and the Ministry of Health is committed to TB control. The Ministry of Health has established a strong system across the country to carry out TB control related activities.

**Question 1**

Describe the role and responsibilities of the following in Tuberculosis control in Bhutan:

(4x5=20 marks)

- a) The role of National TB Reference Laboratory (NTRL) under Royal Centre for Disease Control (RCDC).
- b) The role of National Tuberculosis Control Program (NTCP) in the Ministry of Health.
- c) Role of Dzongkhag Health Services/Hospitals.
- d) Role of Health Workers at the BHU II level.

**Question 2**

Answer the following: (10x1=10 marks)

- a) Treatment success rate for drug sensitive tuberculosis in Bhutan for 2019 cohort was \_\_\_\_\_%.
- b) Treatment success rate for multi-drug resistant tuberculosis in Bhutan for 2018 cohort was \_\_\_\_\_%.
- c) By the end of 12<sup>th</sup> Five Year Plan, the Ministry of Health, Bhutan, plans to reduce the TB deaths by \_\_\_\_\_%.
- d) By the end of 12<sup>th</sup> Five Year Plan, the Ministry of Health, Bhutan, plans to reduce the TB incidence by \_\_\_\_\_%.
- e) DOTS program for TB control was introduced in Bhutan in the year \_\_\_\_\_.
- f) Bhutan achieved 100% coverage by DOTS in the year \_\_\_\_\_.
- g) WHO's post 2015 strategy for TB control is called \_\_\_\_\_.
- h) World Health Assembly adopted the WHO's post 2015 strategy for TB control in the year \_\_\_\_\_.
- i) Name of the vaccine that is given to children for prevention of Tuberculosis \_\_\_\_\_.
- j) Medicine that is recommended for Tuberculosis Prophylaxis among HIV positive patients is \_\_\_\_\_.

**Question 3**

Global Strategy for TB control encompasses a package of interventions that fall under three pillars. Briefly describe the three pillars (first pillar, second pillar and third pillar) of the Global TB strategy. (10 marks)

**Question 4**

Describe the public health strategies for control of Communicable Diseases. (10 marks)

**CASE II**

**Question 1**

Describe in brief the Public Health interventions that have been put in place by the Royal Government of Bhutan for prevention and spread of Covid-19 in the country. (20 marks)

**Question 2**

Describe in brief the working definition for Variant of Concern (VoC) and Variant of Interest (VoI) for Covid-19 virus as presently labelled by World Health Organization. (2x5=10 marks)

- a) Variant of Concern
- b) Variant of Interest

**Question 3**

Give the names of Variants of Concern (VoC) for Covid-19 virus presently labelled by the World Health Organization (WHO). (10 marks)

**Question 4**

Define the following terms used in the Public Health: (5x2=10 marks)

- a) Surveillance
- b) Epidemic
- c) Cluster
- d) Isolation
- e) Quarantine

**TASHI DELEK**