

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2012
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALIZATION PAPER for PUBLIC HEALTH

Date	: 14 October 2012
Total Marks	: 100
Examination Time	: 150 minutes (2.5 hours)
Reading Time	: 15 Minutes (prior to examination time)

READ THE FOLLOWING INSTRUCTIONS CAREFULLY:

1. Write your Roll Number clearly on the Answer Booklet in the space provided.
2. The first 15 minutes is being provided to check the number of pages, printing errors, clarify doubts and to read the instructions. You are NOT PERMITTED TO WRITE during this time.
3. Use either Blue or Black ink pen or ball point pen for the written part and Pencils for the sketches and drawings.
4. All answers should be written on the Answer Booklet provided. Candidates are not allowed to write anything on the question paper or any other materials.
5. It is divided into two sections-namely SECTION A and SECTION B.
6. SECTION A consists of two parts: Part I and Part II.

Part I consists of 30 Multiple-Choice Questions carrying one (1) mark each and is compulsory. The answer of your choice should be clearly written in whole along with the question and option number on your answer booklet. Eg. 31(c).

Part II consists of four (4) short answer questions of five (5) marks each and all questions are compulsory.

7. SECTION B consists of two Case Studies. Choose only ONE case study and answer the questions under your choice. Each case study carries fifty (50) marks in total.
8. This Paper consists of TEN (10) pages including this Instruction page.

SECTION A

PART I - Multiple Choice Questions

Choose the correct answer and write down the letter of the correct answer chosen in the Answer Sheet against the question number. E.g. 31 (c). Each question carries ONE mark.

1. There is an outbreak of cholera in a village with population of two thousand (2000). Twenty (20) people got infected of which five (5) succumbed to the infection. The case fatality rate is-
 - a. 1%
 - b. 0.25%
 - c. 5%
 - d. 25%

2. Descriptive epidemiology is the study in relation to –
 - a. Time
 - b. Place
 - c. Person
 - d. All of the above

3. Random sampling or probability sampling includes all the following technique except –
 - a. Simple random sampling
 - b. Stratified random sampling
 - c. Cluster sampling
 - d. Purposive sampling

4. The statistical approach which helps the investigator to decide whether the outcome of the study is a result of factors planned within design of the study or determined by chance is called –
 - a. Descriptive statistics
 - b. Inferential statistics
 - c. Standard deviation
 - d. Normal distribution

5. What is true about research hypothesis?
 - a. States there is no relationship between the variables
 - b. Statement about the expected relationship of the variables
 - c. States a negative relationship between the variables
 - d. Research hypothesis should always be directional

6. Which of the following methods is a form of graphical presentation of data?
 - a. Line diagram
 - b. Pie chart

- c. Bar diagram
 - d. Histogram
7. Which of the following is not part of public health?
- a. Workplace safety inspections
 - b. Outpatient therapy services
 - c. Vaccination clinics
 - d. Fluoridation of drinking water
8. A disease is called 'endemic' when it –
- a. Occurs in more than one geographical area
 - b. Occurs in more than one season
 - c. Is constantly present at low rate in a geographical area
 - d. Occurs in a frequency more than expected in a specified geographical area
9. Which of the following best describe the objective of the epidemic investigation?
- a. To define the magnitude of the epidemic
 - b. To determine particular conditions and factors responsible
 - c. Identify the cause/source of infection
 - d. All of the above
10. All of the following are true about disaster except –
- a. A disaster may be domestic or international
 - b. A disaster may be caused by nature or have human origin
 - c. A disaster always receives widespread media coverage
 - d. A disaster may have a known and gradual onset
11. Responsibility for securing the scene, preserving life, and treating the wounded is the responsibility of –
- a. First Aid responder
 - b. Mental health professionals
 - c. Social worker who specializes in crisis
 - d. All of the above
12. All of the following are modes of direct transmission of communicable diseases except –
- a. Droplet infection
 - b. Contact with soil
 - c. Transplacental
 - d. Droplet nuclei
13. The time interval between receipt of the infection by host and maximal infectivity of that host is –
- a. Incubation period
 - b. Period of communicability

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- c. Generation time
 - d. Latent period
14. Separation for the period of communicability of infected person or animal is termed as –
- a. Quarantine
 - b. Segregation
 - c. Isolation
 - d. All of the above
15. Modifiable risk factors in case of hypertension includes all except –
- a. Age
 - b. Obesity
 - c. Salt intake
 - d. Alcohol intake
16. Gender, cast, religion, type of disease, and blood group are measured on –
- a. Nominal scale of measurement
 - b. Ordinal scale of measurement
 - c. Interval scale of measurement
 - d. Ratio scale of measurement
17. A measure of dispersion of a set of observations, which is calculated by the difference between highest and lowest value produced is called –
- a. Standard deviation
 - b. Variance
 - c. Range
 - d. Mode
18. A study of a person who has already contacted the disease is called –
- a. Case control
 - b. Cohort
 - c. Control cohort
 - d. Longitudinal
19. Vaccine usually given to pilgrims to the Buddha Gaya is –
- a. DPT
 - b. Measles
 - c. Polio
 - d. Influenza

20. Standard Operating Procedure (SOP) refers to –

- a. An optimal balance between possibilities realized and a frame work of norms and values
- b. Doing the right thing, right way, the first time
- c. Detailed, written instructions to achieve uniformity of the performance of a specific function
- d. A process of meeting the needs and expectations of the customers both internal and external

21. The basis ABC analysis in inventory control is –

- a. Annual consumption value
- b. Criticality of items
- c. Unit cost of item
- d. Procurement difficulty and market availability

22. A board statement by which the organization specifies how it will achieve its goal is –

- a. Mission
- b. Vision statement
- c. Policy
- d. Protocol

23. Which of the following is not a 2 way communication?

- a. Lecture
- b. Group discussion
- c. Panel discussion
- d. Symposium

24. Type of educational assessment which is generally carried out throughout the course or project is –

- a. Summative assessment
- b. Formative assessment
- c. Criterion reference assessment
- d. Ipsative assessment

25. Cognitive domain in Bloom's taxonomy includes all the following except –

- a. Evaluation
- b. Synthesis
- c. Analysis
- d. Criticism

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26. Mycobacterium tuberculosis and Vibrio cholerae were identified by-
- Van Helmholtz
 - Robert Koch
 - Louis Pasteur
 - Van Leeuwenhoek
27. Anthrax is a zoonotic disease caused by Bacillus anthracis and is contacted through all of the following routes except –
- Ingestion
 - Inhalation
 - Contact
 - Via vectors
28. All of the following form a part of occupational health history except –
- Exposure to dust
 - Childhood immunization
 - Details of job profile
 - Family history
29. Segregation is a critical step in efficient healthcare waste management for ensuring safe disposal. It should be done at –
- Point of generation
 - During transportation to site of final disposal
 - At the storage site
 - All of the above
30. Pre-placement of medical examination means –
- Examination at the time of recruitment for a new job
 - Daily examination at the beginning of the shift in a hazardous job
 - Examination of worker at predetermined interval regularly while on the job
 - All of the above

PART – II : Short Answer Questions (20 marks)

Answer ALL the questions. Each question carries 5 marks. Mark for each sub-question is indicated in the brackets.

QUESTION 1

You are posted as DHO of Samtse district. The health assistant of Sipsoo has report increased number of fever cases. The blood samples sent to PHL for analysis confirmed cases of Chikungunya.

- a. List four main symptoms of chikungunya? (2 marks)
- b. Establish the transmission cycle of chikungunya? (2 marks)
- c. List two methods for the control of vectors for immediate containment of the disease (1 Mark)

QUESTION 2

The Bhutan multiple indicator survey conducted in 2010 found:

- | | |
|---------------------------------|-----------------|
| • Infant mortality | 47 per thousand |
| • Prevalence of severe stunting | 13.3 percent |
| • Prevalence of severe wasting | 2 percent |
| • Unmet need for contraception | 11.7 percent |
| • Adolescent fertility rate | 59 per thousand |

Establish the public health importance for each of the above findings? (1 mark each)

QUESTION 3

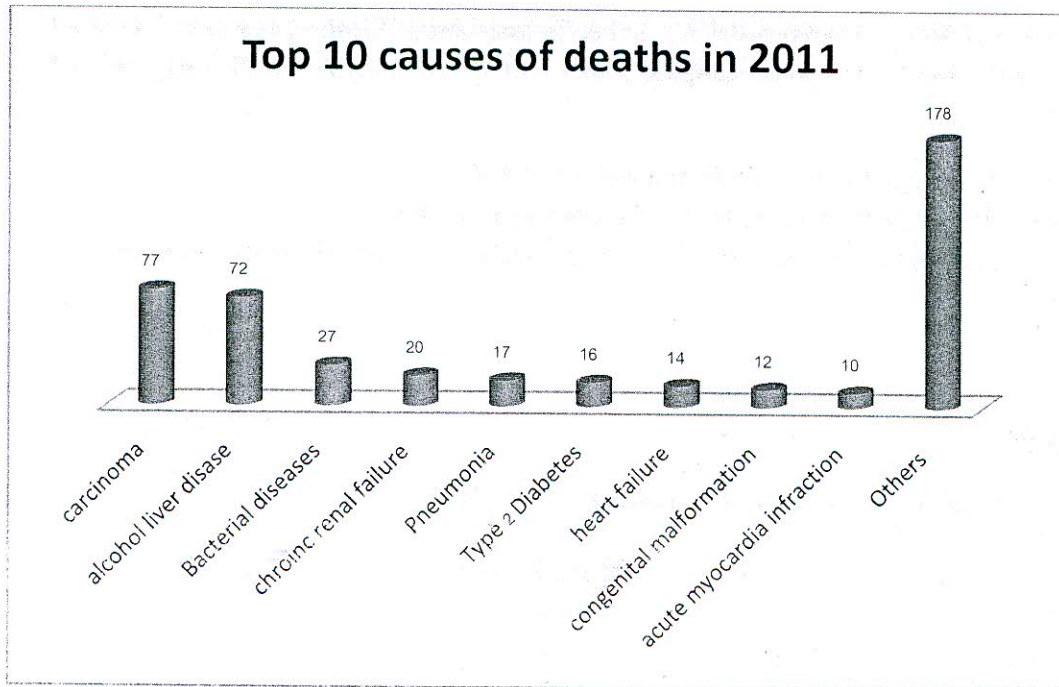
You are posted as DHO of Chukha. You realized that there were five cases of mother to child transmission out of 20 mothers infected with HIV/AIDS. Your role is to develop a project that will reduce the number of new HIV infection in children through focusing on prevention of mother to child transmission of HIV.

- a. Establish the possible factors for the failure of Prevention of Mother to Child Transmission (PMTCT) during antenatal, intrapartum, postnatal care? (2 Marks)
- b. What would be your approach to strengthen PMTCT in your district? (3 Marks)

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QUESTION 4

The following bar graph shows the top 10 causes of death at the JDWNRH in year 2011.



You are posted at JDWNRH as the administrative officer and the above data was presented to you by your information unit.

- Critically analyze the above data and propose a next line of action? (2 mark)
- As indicated in graph, Carcinoma is one of the main causes of death. You want to establish the causes for cancer. What research design will you use and list two disadvantages and two advantages of the proposed research design? (3 marks)

SECTION B : Case Study

Choose either Case 1 or Case 2 from this section. Each Case carries 50 marks.

CASE 1

You are posted as Lhuentzi DHO. The Bhutan multiple indicator survey conducted in 2010, found the median duration of exclusive breast feeding as 0.5 months ONLY. This is one of the lowest as compared with all other districts. This is a major problem for your district and you want to address this issue.

1. You want to know more about this problem and decided to do a literature search. List 5 sources for information and list one advantage and one disadvantage for each source? (5 Mark)
2. Establish social determinants for this problem using fish bone cause effect analysis? (5 Marks)
3. Develop a study proposal to address this problem. The proposal should contain:
 - a. Research Questions(provide general and specific questions) (4 marks)
 - b. Study objectives (Provide general and specific objectives) (4 marks)
 - c. Research hypothesis if required OR give reasons if you think it is not required (4 marks)
 - d. Study methodology(4 marks)
 - e. Ethical issues (4 marks)
 - f. Sampling and sample size(4 marks)
 - g. Data collection methods and tools(4 marks)
 - h. Data analysis (4 marks)
 - i. Develop dummy table for data analysis for 5 key variables as per following format (4 marks)

Sl. Number	Variable name	Data type	Analysis

-
-
-
-
-
-
-
-
-
- j. Timeline and Budget (4 mark)

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CASE 2

You are posted as malaria programme manager at Vector Borne Disease Control Programme. For the 11th Five year plan, you are required to develop strategies for malaria elimination with Gross National Happiness as an over arching developmental philosophy and poverty reduction as the main goal.

- a. What are the four pillar of Gross National Happiness? (2 Marks)
- b. List down 9 domain of gross national happiness? (3 Marks)
- c. Write down the MDG target related to malaria? (2 Marks)
- d. Bhutan has embarked on malaria elimination. What are the difference between elimination, control and eradication? (3 marks)
- e. Explain the social determinants of malaria in terms of poverty, gender, age, sex and occupation? (10 Marks)
- f. Develop the malaria elimination indicators for 11th FYP and link to the four pillars of the GNH providing justification and explanation for the indicators and their relation with the four pillars of GNH? (10 Marks)
- g. Currently, malaria functions as the vertical programme, with head office at Gelephu. What do you mean by this and list down two advantages and two disadvantages of vertical and integrated systems? (5 Marks)
- h. Bhutan is slowly embarking on the establishment of private health care systems. What would be its impact on the overall health systems and in particular to malaria elimination strategy? (5 marks)
- i. Currently, the programme provides free mosquito nets which cost about Nu 200 per net from the GFATM grants. The GFATM grant would phase out soon and RGOB cannot afford to provide free mosquito net. How would you address the sustainability of the mosquito nets supplies beyond the GFATM project? (5 marks)
- j. Bhutan has embarked on democracy in 2008 and subsequently, politicians are keen to improve the health of the people in their constituents. How would you take this opportunity to push your agenda for malaria elimination? (2 Marks)
- k. In a democratic country, there is an increasing role for NGOs and private organizations. What would be an advantages and disadvantages of roping these organizations into the overall health systems and in particular to malaria elimination? (3 Mark)