

**ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2025
EXAMINATION CATEGORY: TECHNICAL**

PAPER III: SUBJECT SPECIALISATION PAPER FOR ENVIRONMENTAL SCIENCE

Date	:	October 11, 2025
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 - 4 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 in 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 **9 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. The Global Theme for World Environment Day 2025 was
 - a) Solutions to Plastic Pollution
 - b) Beat Plastic Pollution
 - c) Land Restoration, Desertification, and Drought Resilience
 - d) Only One Earth
2. Which of the following is NOT a designated Ramsar site of Bhutan?
 - a) Shingkhar wetland, Bumthang
 - b) Bumdeling wetland, Tashiyangtse
 - c) Gangtey-Phobji wetland, Wangdue Phodrang
 - d) Khotokha wetland, Wangdue Phodrang
3. Which of the following is NOT a category of waste according to the Waste Prevention and Management Regulation of Bhutan, 2012?
 - a) Industrial waste
 - b) Medical waste
 - c) Biodegradable waste
 - d) Municipal Waste
4. Which of the following is an indicator of biological water pollution?
 - a) Macroinvertebrates
 - b) Fish
 - c) Algae
 - d) All of the above
5. Bhutan ratified the Paris Agreement on.....
 - a) August 19, 2017
 - b) September 19, 2017
 - c) August 17, 2017
 - d) September 15, 2017

6. According to the Environmental Assessment Act of Bhutan, 2000, environmental assessment means.....
- a) All procedures required under Bhutanese law to identify the impacts of mining activity for ensuring scientific mining.
 - b) All procedures required under Bhutanese law to identify means to ensure that the activities of a project are managed in an environmentally sound and sustainable way.
 - c) All procedures required under Bhutanese law to ensure sustainable forest management.
 - d) All procedures required under the Bhutanese law to uphold the carbon neutrality pledge of the country.
7. Bhutan acknowledges water resources as state property and the state's rights. In this regard, arrange i) water for energy; ii) water for agriculture; iii) water for drinking and sanitation; and iv) water for industry, according to water use priorities/order of priorities observed by the government as per the Water Act of Bhutan, 2011.
- a) iii, ii, iv, and i
 - b) iii, i, iv, and ii
 - c) iii, i, ii, and iv
 - d) iii, ii, i, and iv
8. According to the National Environment Protection Act (2007), which statement below is not true about the "Polluter Pays Principle"?
- a) Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing measures to prevent environmental degradation.
 - b) A person polluting the environment or causing ecological harm is responsible for the costs of containment, avoidance, abatement, medical compensation, mitigation, remediation, and restoration.
 - c) State authorities and local governments, institutions, persons, businesses, and organizations shall cooperate for the protection of the environment. The right and responsibility to cooperate shall extend to all aspects of achieving the environmental objectives.
 - d) The uniformity of the system of environmental protection shall be guaranteed by the Government, the local governments, and the private sector through appropriate policies, plans, and programs such as environmental assessment processes, regulations, incentives, fiscal policies, and other instruments.
9. Chlorophyta is
- a) Heterotroph
 - b) Decomposer
 - c) Autotroph
 - d) None of the above

10. According to the Environmental Standards of Bhutan (2020), which of the following is one of the parameters for incineration emission standards?
- Hydrogen Chloride (HCl)
 - Ozone (O₃)
 - Stack height
 - Poly Aromatic Hydrocarbon
11. A river is a.....
- Wetland ecosystem
 - Lentic ecosystem
 - Lotic ecosystem
 - None of the above
12. According to the Water Act of Bhutan and its Regulation, which statement below is NOT TRUE regarding minimum environmental flow?
- The water regime provided within a river, wetland, or other water bodies to maintain ecosystems and their benefits, where flows are regulated.
 - Develop and maintain inventories on river hydrology, aquatic habitat, river ecology, and morphology to enable scientific determination of minimum environmental flow to be maintained in glacier-fed rivers.
 - The minimum environmental flow to be maintained in a watercourse to sustain its water ecology and environment will be based on the findings of the Environmental Impact Assessment.
 - Where scientific study reports are unable to determine the minimum environmental flow to be maintained in a watercourse, at least 30 % of the lean season flow shall be maintained.
13. Memelakha Compost Plant is “**Turning Waste into Wealth**” using Takakura Composting Method. It adopts composting technique.
- Aerobic composting
 - Vermicomposting
 - Anaerobic digestion
 - Biogas
14. Which of the following does NOT describe the characteristic of hazardous waste?
- Corrodes metals
 - Destroys living tissue
 - Unstable
 - Easily catches fire under extreme conditions
15. Bhutan launched the Bhutan Climate Fund in
- 2024
 - 2021
 - 2023
 - 2022

16. The National Adaptation Plan (NAP) of the Kingdom of Bhutan was submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2023. Which of the following is NOT a sector identified for the NAP?
- a) Water
 - b) Health
 - c) Energy
 - d) Mining
17. Which article of the Paris Agreement governs the development of the global carbon markets?
- a) Article 6
 - b) Article 7
 - c) Article 4
 - d) Article 5
18. What is an environmental clearance according to the Environmental Assessment Act of Bhutan, 2000?
- a) Program of systematic, objective, and quantitative measurements, observations, and reporting of projects that may have environmental impacts.
 - b) A document that specifies the environmental, health, and safety terms for the design, construction, operation, and decommissioning of a project.
 - c) The requirements and conditions that the project must comply.
 - d) The decision issued in writing to let a project proceed, which includes terms to ensure that the project is managed in an environmentally sound and sustainable way.
19. In 2025, **Bhutan joined the world in observing the first World Day for Glaciers**. The United Nations declared as World Day of Glaciers.
- a) 21st April
 - b) 21st May
 - c) 21st March
 - d) 21st February
20. Which of the following is the CORRECT definition of “Deforestation”?
- a) Clearing an area of forest on a non-temporary basis for another use.
 - b) Clear-cutting followed by reforestation for forestry purposes.
 - c) Felling of trees and the extraction of their stems or other usable parts from the forest.
 - d) A gradual decline in the health, biodiversity, and ecological function of a forest.
21. The Greenhouse Gas (GHG) emissions of Bhutan in 2022, according to Bhutan’s first Biennial Transparency Report (BTR 1.0) submitted to the UNFCCC was
- a) 3,306.05 Gg CO₂e
 - b) 1,742.51 Gg CO₂e
 - c) 3,814.098 Gg CO₂e
 - d) 2,723.28 Gg CO₂e

22. According to the National Waste Management Strategy (2019) of Bhutan, which of the following is NOT an identified “Strategic Tool”?
- a) Incineration of municipal waste
 - b) National Waste Management Fund
 - c) Extended Producer Responsibility (EPR) Scheme
 - d) School Waste Bank
23. Which of the following is a form of land degradation?
- a) Agroforestry
 - b) Expansion of forest cover
 - c) Salinization
 - d) Crop rotation
24. Which of the following statement is relevant to the goal of Climate Change Policy of the Kingdom of Bhutan, 2020?
- a) Bhutan’s pledge to remain carbon neutral.
 - b) Meaningful participation of all relevant stakeholders in climate change actions.
 - c) Challenges and opportunities of climate change are addressed at all appropriate levels, through adequate finance, technology, and capacity building.
 - d) All of the above.
25. Which of the following is a substance that blocks the action of **acetylcholine**, a key neurotransmitter in the **central and peripheral nervous systems** in the nervous system?
- a) Anticholinergic
 - b) Inhibitor
 - c) Hepatotoxin
 - d) Organophosphate
26. Systematic process for evaluating the environmental consequences of a proposed policy, plan or program is known as.....
- a) Environmental Impact Assessment
 - b) Strategic Environmental Assessment
 - c) Policy Gap Analysis
 - d) Sound Environmental Management
27. “**Cradle-to-Grave**” analysis describes
- a) Sustainable Consumption and Production
 - b) Circular Economy
 - c) Regenerative Model
 - d) Life Cycle Assessment

28. Which of the following is one of the spheres of the environment?
- a) Hemisphere
 - b) Anthrosphere
 - c) Stratosphere
 - d) Ozonosphere
29. Moles of solute per kilogram of solvent is
- a) Normality
 - b) Molarity
 - c) Molality
 - d) Formality
30. Which of the following is an example of a one-way ecological cycle?
- a) Carbon cycle
 - b) Water cycle
 - c) Energy cycle
 - d) Nitrogen cycle

PART II

Short Answer Questions [20 marks]

This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks.

1. What is climate finance? Elaborate with ONE example in the context of Bhutan **(5 marks)**
2. What is Green Hydrogen? Elaborate in the context of climate change. **(5 marks)**
3. Elaborate on “waste as a water pollutant” with an appropriate example in the context of Bhutan. **(5 marks)**
4. What is carbon negative? Explain the key drivers that made Bhutan achieve it. **(5 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

For the first time since meteorological records were maintained in 1996, Bhur Meteorological Station in Sarpang Dzongkhag has recorded a staggering 40°C in 2025, marking the highest daily maximum temperature of 2024. This extreme temperature surpasses the highest recorded temperature in recent years, signaling the intensifying impacts of global warming on the Himalayan region.

1. Elaborate on the key causes of the rise in global temperature commonly referred to as global warming. **(10 marks)**
2. What specific geographic, ecological, and socio-economic factors make Bhutan especially vulnerable to rising temperatures? **(10 marks)**
3. What ecological or societal risks does this pose for Bhutan? Elaborate with specific examples. **(10 marks)**
4. What comprehensive climate mitigation and adaptation strategies should Bhutan prioritize to safeguard its ecological integrity and socio-economic resilience in the face of accelerating climate change? **(10 marks)**
5. What collective actions must the global community undertake, across governments, industries, and civil society, to effectively confront the increasing climate crisis to ensure a sustainable future? **(10 marks)**

Case II

The 13th Five Year Plan (FYP) strategically prioritizes “**Waste Management Enterprise Development**” as a cornerstone initiative to modernize and strengthen the waste management system in the country. By explicitly encouraging private sector engagement, the plan opens a pathway for **innovative, market-driven solutions** to address increasing issues of waste. This approach not only fosters entrepreneurship in the waste management landscape but also aligns with Bhutan’s long-term vision of achieving a **Zero Waste Society**, where sustainability, circular economy principles, and community participation converge to protect the country’s pristine environment through an improved waste management system.

1. In what ways can embracing circular economy principles accelerate Bhutan’s transition toward a Zero Waste Society? **(10 marks)**
2. Critically assess the potential benefits and limitations of adopting the Public-Private Partnership (PPP) model as a strategic approach to foster private sector involvement in waste

management services, particularly in the context of enhancing efficiency, accountability, and sustainability. **(10 marks)**

3. What is Extended Producer Responsibility (EPR)? Elaborate on its advantages and disadvantages in the context of the waste management system in Bhutan. **(10 marks)**
4. In what ways can an effective waste management system help mitigate or reduce Greenhouse Gas emissions? **(10 marks)**
5. How can advocacy, awareness, and education programs contribute to Bhutan's pursuit of a Zero Waste Society? **(10 marks)**

TASHI DELEK