

**ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE**

Number of pages: 7 (Seven)

SECTION A (50 MARKS)

Part 1: Select the correct answer from the multiple choices given below and write the answer against each question number on the answer sheet. Multiple answer questions (1 x 30 marks)

1. Herpetology is the study of
 - a. Insects
 - b. Fishes
 - c. Lizards
 - d. Minute structure of tiny bits of body as seen with the help of compound microscope
 - e. None of the above

2. Exobiology is
 - a. Science that contemplates to study life on the planet
 - b. Science that contemplates to study life elsewhere in the universe
 - c. Science that contemplates to study life under water
 - d. Science that contemplates to study microbes
 - e. None of the above

3. Transgenic crop
 - a. Maize
 - b. Cotton
 - c. Papaya
 - d. All of the above
 - e. None of the above

4. Vehicle Emission Standard for diesel and petrol in Bhutan
 - a. Diesel: 80HSU for vehicles registered until end of 2007 and 75 HSU for vehicles registered from 2008; Petrol: 5.0% CO for vehicles registered until end of 2007 and 4.5% CO for vehicles registered from 2008
 - b. Diesel: 70HSU for vehicles registered until end of 2007 and 65 HSU for vehicles registered from 2008; Petrol: 4.0% CO for vehicles registered until end of 2007 and 3.5% CO for vehicles registered from 2008
 - c. Diesel: 75HSU for vehicles registered until end of 2007 and 70 HSU for vehicles registered from 2008; Petrol: 4.5% CO for vehicles registered until end of 2007 and 4.0% CO for vehicles registered from 2008
 - d. Diesel: 75HSU for vehicles registered until end of 2007 and 70 HSU for vehicles registered from 2008; Petrol: 5.0% CO for vehicles registered until end of 2007 and 4.5% CO for vehicles registered from 2008
 - e. None of the above

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE

5. Forest fire can be generally classified into the following category
 - a. Natural fire, accidental fire and seasonal fire
 - b. Accumulation of biomass on the ground, accumulation of dry materials on the ground and old growth forest
 - c. Crown fire, ground fire and underground fire
 - d. All of the above
 - e. None of the above

6. Bioprospecting refers to
 - a. Use of indigenous knowledge only
 - b. Patenting life forms
 - c. Searching and collecting of biological resources for the individual gain
 - d. Searching and collecting of biological resources for the purpose of commercial development
 - e. All of the above

7. United Nation's Declaration of the Right of Indigenous Peoples was adopted by the General Council on
 - a. 12th September 2006
 - b. 12th September 2007
 - c. 13th September 2006
 - d. 13th September 2007
 - e. None of the above

8. Global Environmental issue (s)
 - a. Climate change
 - b. Ozone layer depletion
 - c. Deforestation
 - d. a and b
 - e. All of the above

9. Bhutan is known for the Gross National Happiness (GNH) Concept around the world. Which of the following is not one of the pillars of GNH?
 - a. Environment
 - b. Culture and tradition
 - c. Good governance
 - d. Expansion of hydropower
 - e. Economic Development

10. The following mineral is not found in Bhutan:
 - a. Gypsum
 - b. Dolomite
 - c. Silver
 - d. Quartzite

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE

- e. Talc
11. The National Environment Strategy 1998 outlines three main avenues of sustainable economic development
- a. Expanding hydropower, increasing agriculture self-sufficiency and expanding the industrial base
 - b. Good Governance, National Security and Gross National Happiness
 - c. Increasing export of agricultural produce, encouraging Foreign Direct Investment and promoting mineral based industries
 - d. Conservation of environment, promotion of culture and sustainable development
 - e. None of the above
12. What is a visual impact in the Environmental Impact Assessment study?
- a. Blended with the existing environment
 - b. Socio-economic impact
 - c. Eye soar
 - d. Impact on the receiving environment
 - e. None of the above-mentioned
13. The following is the area designated as biological corridor in Bhutan
- a. 9.5 percent
 - b. 8.5 percent
 - c. 23.23 percent
 - d. 9.0 percent
 - e. 32 percent
14. Precautionary principle or approach is
- a. An approach to uncertainty and provides for action to avoid irreversible environmental damage in advance of scientific certainty of such harm
 - b. An approach to suggest remedial measures to prevent environmental damage based on the available scientific information
 - c. An approach to eliminate negative impacts and maximize positive impacts on the surrounding environment
 - d. An approach to prepare environmental management plan to address environmental impact
 - e. All of the above
15. Bhutan acceded to the Protocol under the Convention on Biological Diversity
- a. 25th August 1995, Cartagena Protocol
 - b. 22nd September 2002, Cartagena Protocol
 - c. 22nd September 2002, Montreal Protocol
 - d. 25th August 1995, Kyoto Protocol
 - e. 22nd September 2002, Kyoto Protocol

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE

16. A scorpion stalks, kills, and then eats a spider. Based on its behavior, which ecological terms describe the scorpion?
- Producer, herbivore, decomposer
 - Producer, carnivore, heterotrophic
 - Predator, carnivore, consumer
 - Predator, autotrophic, herbivore
 - None of the above
17. Certain bacteria living in a human's large intestine help to produce vitamin K. This relationship is an example of
- Animal parasitism
 - Plant parasitism
 - Commensalism
 - Mutualism
 - None of the above
18. The amount of oxygen dissolved in natural water samples is measured and analyzed to determine the primary productivity of the sample. The amount of dissolved oxygen is dependent upon many factors. Such as
- Temperature, salinity, respiration, photosynthesis
 - Vegetation cover
 - Aquatic fauna
 - People's activities
 - All of the above
19. If the river water is slightly alkaline with low conductivity, is it
- Degraded water
 - Moderately degraded water
 - Clean water
 - Dirty water
 - All of the above
20. While sampling in a stream, lots of stone fly species were discovered. Is the water
- Highly polluted
 - Moderately polluted
 - Pristine
 - All of the above
 - None of the above

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE

21. The brown bears, takins, and vegetation in a particular region of Laya Lingshi together constitute part of a
- a. Population
 - b. Community
 - c. Genus
 - d. Species
 - e. None of the above
22. From the given names of the national parks in Bhutan, which is the biggest?
- a. Royal Manas National Park
 - b. Jigme Dorji National Park
 - c. Jigme Singye Wangchuk National Park
 - d. Thrumshingla National Park
 - e. Bumdeling Wildlife Sancturay
23. Public consultation is a fundamental principle of EA, and is a component of all EA processes around the world. The key objective (s) of Public Consultation is/are to
- a. Facilitate consideration of alternatives, mitigation measures and tradeoffs
 - b. Reduce conflict through the early identification of contentious issues
 - c. Provide an opportunity for the public to understand the project design
 - d. a and b
 - e. All of the above
24. Forest Cover (as per FAO) means
- a. Land spanning more than 0.5 Acres with trees higher than 5 feet, and canopy cover of more than 5%
 - b. Land spanning more than 0.3 HA with trees higher than 3m, and canopy cover of more than 3%
 - c. Land spanning more than 0.5 HA with trees higher than 5m, and canopy cover of more than 10%
 - d. Land spanning more than 10 HA with trees higher than 10m, and canopy cover of more than 10%
 - e. None of the above
25. Mainstreaming Biodiversity means
- a. Internalizing the goals of biodiversity conservation and the sustainable use of biological resources into economic sectors and development models, policies and programs, and thereafter into all human behavior
 - b. Externalizing the goals of biodiversity conservation and the sustainable use of biological resources into economic sectors and development models, policies and programs, and thereafter into all human behavior
 - c. Internalizing the goals of biodiversity conservation and the sustainable use of biological resources into private sectors and development models, policies and programs, and thereafter into all human behavior

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE

- d. Internalizing the goals of biodiversity conservation and the sustainable use of biological resources into public sectors and development models, policies and programs, and thereafter into all human behavior
- e. All of the above
26. In the aggregate and at a global scale, the following is the driver of biodiversity loss
- a. Habitat transformation, particularly from conversion to agricultural Economic
 - b. Overexploitation
 - c. Biotic exchange
 - d. Nutrient loading
 - e. All of the above
27. Environmental Standard for noise (measured in decibel-Db) in industrial area is (As per NEC Environmental Discharge Standard 2004)
- a. 90 Db during day and 80 Db during night
 - b. 75 Db during day and 70 Db during night
 - c. 65 Db during day and 60 Db during night
 - d. 60 Db during day and 55 Db during night
 - e. 70 Db during day and 75 Db during night
28. Salient features of the Environmental Friendly Road Construction
- a. Balanced cut and fill
 - b. Bioengineering
 - c. Water management and drainage
 - d. Controlled blasting
 - e. All of the above
29. Agenda 21 was adopted during Rio Earth Summit in
- a. 1990
 - b. 1991
 - c. 1992
 - d. 1993
 - e. 1994
30. Scoping is
- a. A step in the process of pollution control
 - b. A step in the process of strategic environmental assessment
 - c. A step in the process of an environmental impact assessment
 - d. b and c
 - e. None of the above

ROYAL CIVIL SERVICE COMMISSION
CIVIL SERVICE COMMON EXAMINATION FOR TECHNICAL GRADUATE – 2007
PAPER III – TECHNICAL SUBJECT
ENVIRONMENTAL SCIENCE

Part II: Provide short answers to the following questions (4 x 5 marks)

1. What is “tragedy of the commons”? Provide a concrete example illustrating the idea “private gain, public cost.”
2. What are “Strategic Environmental Assessment” and “Environmental Impact Assessment”? Mention their differences?
3. What do you understand by the term, “Sustainable Development”? When did this term first emerge and from where?
4. In constructing a landfill in Bhutan, what are some of the environmental parameters that should be considered?

SECTION B

Choose only 1 question from the following two questions (1 x 50 marks)

1. Generally, construction of a road has both negative and positive impacts on the receiving environment. Think of some impacts associated with construction of a road in Bhutan and answer the following:
 - a. List potential positive impacts
 - b. Identify potential negative impacts
 - c. Prepare an Environmental Management Plan
2. Today, the world is confronted with series of environmental problems. Similarly, Bhutan has her own share of environmental issues. Think of some emerging environmental issues in Bhutan and answer the following:
 - a. List the emerging environmental issues
 - b. Describe each issue identified
 - c. Prepare an action plan

End of Exam.