

ENVIRONMENTAL SCIENCE

Maximum Marks: 70

Time Allotted: Three Hours

Reading Time: Additional Fifteen Minutes

Instructions to Candidates

1. You are allowed an **additional fifteen minutes** for **only** reading the question paper.
2. You must **NOT** start writing during reading time.
3. This question paper has **7 printed pages and one blank page**.
4. There are **twelve** questions in the paper. All questions are compulsory.
5. This paper is divided into **three sections: A, B and C**.
6. **Section A** has **fourteen subparts** which are very short answer questions. Each question carries 1 mark.
7. While attempting **Multiple Choice Questions** in Section A, you are required to **write only ONE option as the answer**.
8. **Section B** has **seven questions** which are short answer questions. Each question carries 4 marks.
9. **Section C** has **four questions** which are long answer questions. Each question carries 7 marks.
10. **Internal choices** have been provided in **two questions in Section B** and in **one question in Section C**.
11. The intended marks for questions are given in brackets [].

Instruction to Supervising Examiner

1. Kindly read **aloud** the Instructions given above to all the candidates present in the examination hall.

SEAL

SECTION A – 14 MARKS

Question 1

- (i) Sunrise Ltd. is a company that produces batteries for electrical appliances. [1]
The old batteries are sent back to its manufacturing unit after their expiry.

Which one of the following policies is followed by Sunrise Ltd.?

- (a) Protectionism
 - (b) Natural Resource Accounting
 - (c) Extended Producer Responsibility
 - (d) Defensive Expenditure
- (ii) Given below are two statements marked Assertion and Reason. Read the two [1]
statements carefully and choose the correct option.

Assertion: *In-situ* conservation is a natural practice of conserving biodiversity.

Reason: It allows natural processes like species interaction and evolution to continue undisturbed.

- (a) Both Assertion and Reason are true and Reason is the correct explanation for Assertion.
 - (b) Both Assertion and Reason are true but Reason is not the correct explanation for Assertion.
 - (c) Assertion is true and Reason is false.
 - (d) Both Assertion and Reason are false.
- (iii) Sheetal has to collect primary data as a part of her project on traditional irrigation [1]
systems in India.

Which one of the following sites should she visit to collect the primary data?

- (a) Tehri dam in Uttarakhand
- (b) *Johad* in Rajasthan
- (c) Indira Gandhi canal from Punjab to Rajasthan
- (d) Modern Reliance farm for drip irrigation

- (iv) Ambient air sampling is a process to monitor and assess air quality in an area. [1]
Which one of the following is **likely** to ensure accurate ambient air sampling?
- (a) Conducting sampling only during favourable weather conditions
 - (b) Reducing the frequency of sampling to minimise costs
 - (c) Avoiding sampling near industrial areas
 - (d) Using proper instruments and selecting appropriate sampling locations
- (v) Study the relation between the first and the second words / terms given below and fill in the missing word / term on that basis. [2]
- (a) Basel Convention: Global :: Bamako Convention: _____
 - (b) Immigration: Emigration :: Birth rate: _____
- (vi) Diya is a popular song writer and wants to protect her creative work from being stolen. [1]
What type of Intellectual Property Right should she apply for?
- (vii) Name the legislation passed after independence to abolish the zamindari system in India. [1]
- (viii) Write the expanded forms of the following: [2]
- (a) GNP
 - (b) FPO
- (ix) Write a term for each of the descriptions given below:
- (a) An ethic proposed by Wendell Berry, wherein every member of society is responsible for planning and management of land resources. [1]
 - (b) Loss of genetic diversity within a population. [1]
 - (c) A government policy by which restrictions on international trade are removed. [1]
 - (d) A traditional water harvesting practice of collecting water from glaciers. [1]

SECTION B - 28 MARKS

Question 2

[4]

- (i) State *any four* functions of State Pollution Control Board (SPCB).

OR

- (ii) State *any four* objectives of National Air Monitoring Programme (NAMP).

Question 3

Read the following scenario and answer the questions that follow.

Six months ago, twenty-five year old Danny moved from Assam to Goa. He joined as a Chef at a seaside resort in Goa. He earned well and saved some money for himself and sent a part of his earnings to his parents in Assam.

- (i) What term can be used to denote the movement of Danny? [1]
- (ii) Briefly discuss *any three* factors that motivate such movement. [3]

Question 4

[4]

What is *globalisation*? Discuss *any three* demerits of Globalisation.

Question 5

Read the scenario given below and answer the questions that follow.

Under the Soil Health Card scheme of Government of India, each farmer is entitled to a printed report of their field. The report makes them aware of the health status of the soil with respect to some parameters.

Rajan, a soil expert, visited the fields of ten farmers in Rajasthan. He checked the level of Nitrogen, Phosphorous, Potassium (N, P, K) present in the soil in each field and gave a status report to the farmers.

- (i) Which type of indicator did Rajan check for? [1]
- (ii) During one such visit to a field, Rajan observed that the seeds did not grow despite all efforts by the farmer. [3]

Analyse *any three* indicators that hinted at such a condition of the field. Give a reason for each indicator to support your analysis.

Question 6

[4]

- (i) Explain *any four* features of Food Security Law (2013).

OR

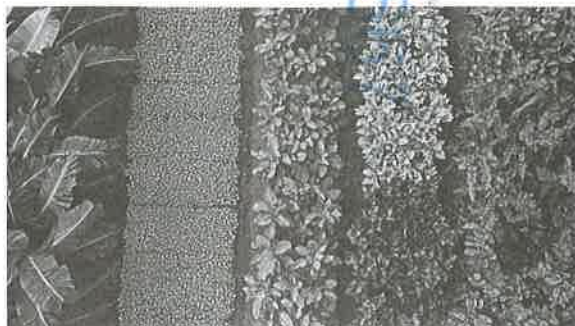
- (ii) Discuss *any four* ways by which empowerment of women has reduced population size.

Question 7**[4]**

How did the radical approach of Earth First! organisation spread the idea of conservation across the world?

Question 8

Observe the picture shown below and answer the questions that follow.



(Source: stock.adobe.com)

- (i) Identify the element of Sustainable Agriculture illustrated above. **[1]**
- (ii) Briefly explain *any three* features of the element of Sustainable Agriculture shown above. **[3]**

SECTION C – 28 MARKS**Question 9**

All major cities in the world have been depleting their ecological assets mindlessly. If we continue at this rate, we will exhaust our planet's capacity to sustain us and would need at least two planets to meet our demands.

- (i) (a) Which term describes this mindless depletion of ecological assets? **[1]**
(b) As a nation, Cuba has attempted to overcome the challenge of disproportionate use of natural resources and has become an exemplar in its sustainable use of resources. **[3]**
Briefly discuss *any three* ways by which Cuba has tried to overcome this challenge.
- (ii) Contrast Macro Irrigation from Micro irrigation on each of the following bases: **[3]**
 - (a) Water use
 - (b) Cost
 - (c) Suitability

Question 10

- (i) The residents of Shantivan, a housing society, installed solar panels on their houses and stopped using the conventional sources of energy.

Nandini, a resident of another society in the neighbourhood, felt a reduction in the level of pollution. During her evening walks, she did not feel breathless and noticed that the quality of air had improved.

- (a) What type of externality is evident in the above scenario? Give a reason for your answer. [2]
- (b) Mention *two* examples of the opposite of the type of externality indicated above. [2]
- (ii) State *any two* advantages and *any one* disadvantage of Cost Benefit Analysis. [3]

OR

- (iii) Read the extract given below taken from a poem and answer the question that follows.

‘Each creature holds a purpose, small or grand,
A vital part within this sacred land.
The hawk’s keen eye, the spider’s gentle grace,
Each plays its role, in time and space.’

(Source: *The Weaver’s Song* by Anonymous)

- How do the lines given above relate to the idea of ecology put forth by Barry Commoner? [4]
- (iv) Briefly explain *any three* advantages of a dry toilet in a semi-arid region. [3]

Question 11

- (i) A developed country X, donated 100 billion dollars to a developing country Y, to build a bridge. However, the donor country X, doubted that the funds might be used for some other cause by the recipient country. [2]

Give *any two* possible reasons to explain the suspicion of donor country about the misutilisation of funds.

- (ii) ‘From fields of gold to fields of sorrow.’ [5]

In the light of the phrase given above, analyse the status of Indian agriculture during the colonial rule.

Question 12

Read the passage given below and answer the questions that follow.

The officials of Food Safety and Drug Administration raided many sweet shops across a major city in India. They raided these shops around the festive season to assess the quality of sweets being sold. They collected random samples from these shops and sent them for analysis. The results were announced by FSDA official who said, "Eight of the twenty samples failed quality standards... Presence of detergent powder was detected in khoya burfi samples while chemical colours were used instead of food grade colours to beautify the sweets."

(Source(edited): timesofindia.indiatimes.com)

- (i) Which practice of degrading the quality of food is referred to in the passage? [1]
- (ii) Briefly discuss *any three* ill effects of the practice indicated in the passage. [3]
- (iii) In your opinion, why is this practice widespread especially during the festive season? [3]