

# ENVIRONMENTAL SCIENCE

**Maximum Marks: 80**

**Time allowed: Two hours**

1. *Answers to this Paper must be written on the paper provided separately.*
  2. *You will **not** be allowed to write during the first 15 minutes.*
  3. *This time is to be spent in reading the question paper.*
  4. *The time given at the head of this Paper is the time allowed for writing the answers.*
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5. *Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*
  6. *The intended marks for questions or parts of questions are given in brackets [ ].*

## **Instruction for the Supervising Examiner**

*Kindly read aloud the Instructions given above to all the candidates present in the Examination Hall.*

**SECTION A (40 Marks)**

*(Attempt all questions from this Section.)*

**Question 1**

[16]

Choose the correct answers to the questions from the given options.

(Do not copy the questions, write the correct answers only.)

(i) Vehicular pollution : : \_\_\_\_\_; Industrial Pollution : : Cyclone Separator

- (a) Wood
- (b) Smokeless Chullah
- (c) Catalytic converter
- (d) Diesel

(ii) **Assertion (A):** The economy of a family depends on the size of it.

**Reason (R):** The children can get better education and health care.

- (a) (A) is True but (R) is False.
- (b) (A) is False but (R) is True.
- (c) Both (A) and (R) are True but (R) is not the correct explanation of (A).
- (d) Both (A) and (R) are True and (R) is the correct explanation of (A).

(iii) The statistical study of Population of a country is known as:

- (a) Birth rate
- (b) Demography
- (c) Growth Rate
- (d) Death rate

- (iv) Which one of the following is eco-friendly?
- (a) Using solar cooker
  - (b) Using plastic bags
  - (c) Using diesel in vehicles
  - (d) Use chemical pesticides in agriculture.
- (v) The two forms of fossil fuels are:
- (a) Methanol and Ethanol
  - (b) Petrol and CNG
  - (c) Biomass and Petrol
  - (d) Diesel and Methanol
- (vi) In-situ conservation is keeping animals and plants in:
- (a) Gene bank
  - (b) Keeping them in Biosphere
  - (c) Conserving in Botanical gardens
  - (d) Keeping them in Zoo
- (vii) The Dal Lake in Srinagar is covered with algal bloom and aquatic plants leading to reduced oxygen level in the lake. Which one of the following is a reason for this?
- (a) The lake is rich in nutrients from surrounding areas.
  - (b) There are many aquatic animals in the lake.
  - (c) The lake gets covered with snow during winter.
  - (d) The lake has lot of sunlight.

(viii) Rearrange the following steps in the Ascending order for implementing mixed cropping:

Step 1: Plant the main crop

Step 2: Prepare the soil with organic matter and fertilisers

Step 3: Select compatible crops for intercropping

Step 4: Harvest the crops

(a) Step 2, Step 3, Step 1, Step 4

(b) Step 4, Step 3, Step 2, Step 1

(c) Step 1, Step 2, Step 3, Step 4

(d) Step 3, Step 1, Step 4, Step 2

(ix) Integrated Pest Management reduces the application of \_\_\_\_\_.

(a) Health problems

(b) Environment damage

(c) Pesticides

(d) Fertilisers

(x) **Assertion (A):** Sustainable development requires a multidisciplinary approach.

**Reason (R):** It involves balancing economic, social, and environmental considerations.

(a) (A) is true but (R) is false.

(b) (A) is false but (R) is true.

(c) Both (A) and (R) are true and (A) is the correct explanation of (R).

(d) Both (A) and (R) are true but (R) is the correct explanation of (A).

- (xi) In relation to IUCN classification of species match each item in COLUMN I with one item in COLUMN II and choose the correct answer:

**COLUMN I**

**COLUMN II**

- |                             |   |
|-----------------------------|---|
| 1. PETA                     | A. Documentation of species                       |
| 2. Buffer zone              | B. Vegetative and gene are preserved              |
| 3. Seed banks or gene banks | C. Education and other activities are carried out |
| 4. Red Data book            | D. To protect the rights of animals.              |

(a) 1–A, 2–B, 3–C, 4–D

(b) 1–D, 2–C, 3–B, 4–A

(c) 1–B, 2–D, 3–A, 4–C

(d) 1–C, 2–A, 3–D, 4–B

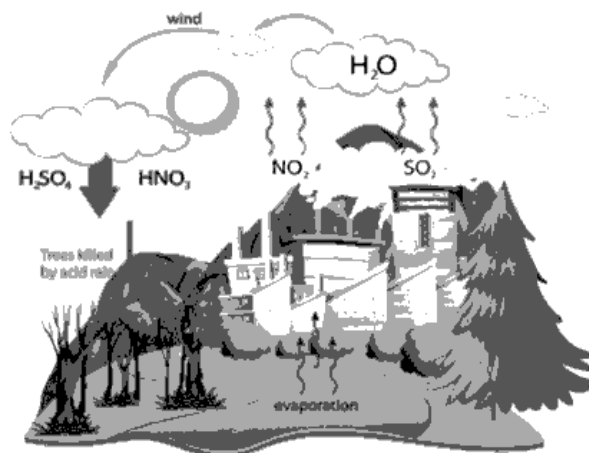
- (xii) Which of these is NOT a method of soil conservation?

- (a) Intercropping
- (b) Mulching
- (c) Weathering
- (d) Contour ploughing

- (xiii) The main objective of sustainable methods of modern conservation is to:

- (a) maintain essential ecological process and life support system.
- (b) reduce the vehicular pollution.
- (c) use natural resources judiciously
- (d) increase the powerful species.

(xiv) Study the picture given below and state the phenomenon represented by this:



- (a) Acid Rain
  - (b) Global Warming
  - (c) Eutrophication
  - (d) Ozone depletion
- (xv) Which of the following is INCORRECT in the case of unfair trade?
- (a) The poor are made richer by unfair trade practices.
  - (b) Unfair trade practice is to be major cause for environmental deterioration.
  - (c) Developing countries want to trade reserves of wildlife to earn money.
  - (d) Developed countries want to conserve reserves of wildlife and restrict the trade.
- (xvi) Which one of the following is an incorrect pair:
- (a) HYV → Better yield
  - (b) Chemical fertiliser → Eco friendly
  - (c) Vermicomposting → Earth worms
  - (d) Farmyard manure → Cattle dung

### Question 2

- (i) What is TTZ with reference to air pollution? Why was it formed? [2]
- (ii) Why is it necessary to have CNG vehicles in public transport system? [2]
- (iii) The population of a developing country rises every year. Write *two* causes for this rise in population. [2]
- (iv) Mention *any two* problems faced by the people staying in slums. [2]

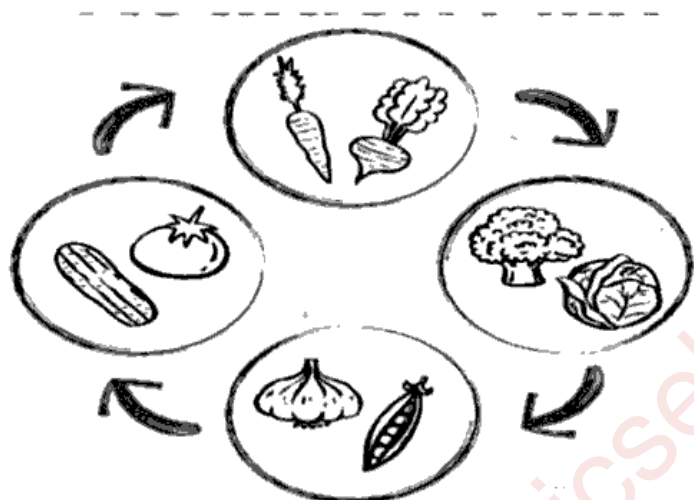
### Question 3

- (i) Give *two* reasons for people going back to their villages after staying in the cities for some time. [2]
- (ii) Write *two* methods you would use to reduce pests in homes and crop fields. [2]
- (iii) List *two* alternative methods or materials which can be used to reduce cutting down of trees. [2]
- (iv) What is the difference between Polyculture and Monoculture? [2]

### Question 4

- (i) What is the significance of the core and buffer zone of Biosphere reserve? [2]
- (ii) What is the role of small-scale industries in reducing poverty? [2]
- (iii) What are the effects that the MIC gas had on the people of Bhopal when it leaked from the Union Carbide factory? [2]

- (iv) What practice of growing crops is shown in the picture given below? Write one advantage of it? [2]



Group 1: Tomato Family & Squash Family

Group 2: Carrot Family & Beet Family

Group 3: Broccoli Family

Group 4: Onion Family & Pea Family



### SECTION B (40 Marks)

(Attempt any four questions from this Section.)

#### Question 5

- (i) "Taylor Swift, the American singer was trolled on the internet for releasing carbon foot print due to her extensive travel" (Carbon credits.com). A global protocol agreement was signed in Japan in 1997 to address this issue. [5]
- (a) Name the agreement and what was the objective of it?
- (b) Write three ways by which you can control air pollution in urban areas.
- (ii) State and explain any five effects of rising population on a country's economy, urban life and natural resources. [5]

### Question 6

- (i) There are many NGOs who campaign to bring about sustainable development and conservation of environment. List five ways by which NGOs promote environmental protection. [5]
- (ii) Scientists have observed that average temperatures of the earth have risen by  $1.5^{\circ}\text{C}$  over the past two decades. Environmentalists attribute these changes to global warming, which is a direct result of the increased greenhouse gases in the atmosphere. [5]
- (a) What is greenhouse effect?
- (b) Write *two* causes and *two* effects of global warming?

### Question 7

- (i) Riya noticed that her apartment complex generates large amount of kitchen and garden waste daily. [5]
- (a) Is this Biodegradable or Nonbiodegradable waste?
- (b) Explain a method the apartment should adopt to dispose this kind of waste.
- (c) Name a toxic waste released from hospitals. How is it disposed?
- (ii) Answer the following questions on Biodiversity. [5]
- (a) Write *two* causes of loss of Biodiversity.
- (b) What is captive breeding? Write *two* disadvantages of ex-situ conservation.

### Question 8

- (i) As the head of the Environment Club, suggest *any five* practical ways the school can conserve energy and promote the use of renewable energy sources. [5]
- (ii) HYV seeds and organic fertilisers are being used widely by farmers in some parts of India. [5]
- (a) Write the expanded form of HYV seeds.
- (b) Why are HYV seeds widely used, write two advantages of these seeds?
- (c) Give *two* reasons for the use of organic fertilisers.

### Question 9

*“Motorists using the Ghodbunder road, Mumbai, had to endure a harrowing experience amid traffic snarls due to multiple vehicle breakdown at ghat section and sparse police presence”*

*(TOI 23rd Dec 2023)*

- (i) How will this traffic congestion affect the environment? [5]
- Write *four* ways to manage traffic to solve this problem.
- (ii) What is Urbanisation? Mention *four* disadvantages of Urbanisation? [5]

**Question 10**

- (i) What is sustainable development? [5]

Write *four* ways that we can opt to bring sustainable development.

- (ii) *Satellite images have numerous applications in variety of fields.* [5]

Explain *five* fields in which satellite imagery is used to monitor the environment.