

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.

This paper consists of 11 printed pages and 1 blank page.

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Turn Over

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) The term used for the increase in population, which leads to the growth and expansion of cities is:
- (a) Deurbanisation
 - (b) Counter urbanisation
 - (c) Urbanisation
 - (d) Ruralisation
- (ii) **Assertion (A):** Education plays a key role in women's empowerment.
- Reason (R):** Access to education empowers women to make their own decision.
- (a) (A) is true and (R) is false.
 - (b) (A) is false and (R) is true.
 - (c) Both (A) and (R) are true and (R) is the correct explanation of (A).
 - (d) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (iii) The principle of 3Rs in waste management stands for:
- (a) Reduce, Regain, Recycle
 - (b) Reduce, Reuse, Regain
 - (c) Reuse, Retain, Regain
 - (d) Reuse, Reduce, Recycle

(iv) Which of following is **NOT** related to land use planning?

- (a) Systematic assessment of land
- (b) Unplanned drainage system
- (c) Complete infrastructure planning
- (d) Developed transport facility

(v) Identify the best method to make the soil fertile.

- (a) Spraying pesticides
- (b) Burning grass cover
- (c) Using trickle drip irrigation
- (d) Adding farmyard manure

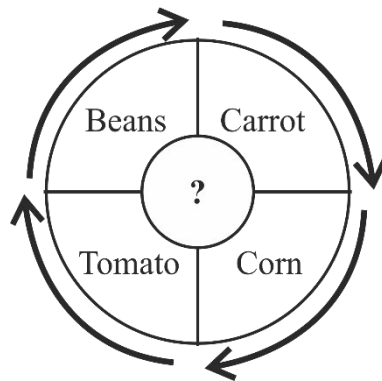
(vi) Match Column I with Column II.

	Column I		Column II
1.	Planting rows of trees and shrubs.	A.	Check Dams
2.	Cutting the fields at a right angle to the slope.	B.	Mulching
3.	Dry leaves are spread on soil.	C.	Terrace Farming
4.	Reduce the speed of water flow.	D.	Wind Breakers

- (a) 1-C, 2-D, 3-A, 4-B
- (b) 1-D, 2-C, 3-B, 4-A
- (c) 1-A, 2-C, 3-B, 4-D
- (d) 1-B, 2-A, 3-C, 4-D

- (vii) Which one of the following statements is **NOT** correct?
- (a) Ozone depletion benefits the earth.
 - (b) Eutrophication is due to the dissolved phosphate in water bodies.
 - (c) Global warming is the rise in the average temperature of the earth.
 - (d) Greenhouse effect is due to deforestation.
- (viii) To reduce the environmental impact of construction activities, which of the following methods should be undertaken?
- (a) Increasing construction waste
 - (b) Using eco-friendly construction material
 - (c) Using timber for construction
 - (d) Inefficient use of water resources
- (ix) Fukushima : Release of radioactive materials : : Bhopal Gas Tragedy :
- _____
- (a) Leakage of Methyl Isocyanate
 - (b) Leakage of oil
 - (c) Flash floods due to cloud burst
 - (d) Dumping of Cobalt 60
- (x) One positive impact of MNCs on the local economy of the host country is:
- (a) drain of wealth
 - (b) destruction of culture
 - (c) employment generation
 - (d) introduction of government policies

- (xi) According to IUCN, Dodos have been classified as _____.
(a) Endangered species
(b) Endemic species
(c) Vulnerable species
(d) Extinct species
- (xii) Microbial breakdown of biomass in the absence of oxygen produces _____ gases.
(a) Chlorine and fluorine
(b) Methane and carbon dioxide
(c) Nitrogen and hydrogen
(d) Oxygen and nitrogen
- (xiii) Identify the type of farming that is shown through the diagram given below:



- (a) Inter Cropping
(b) Mixed farming
(c) Crop rotation
(d) Strip farming

(xiv) Identify the incorrect pair from the following:

- (a) Solar energy – Solar panels
- (b) Leguminous crop – Wheat
- (c) Ethanol – Fuel efficiency
- (d) Rare species – One horned rhino

(xv) The picture given below shows a car with a fuel tank. Identify the fuel used in the tank to run the vehicle.



- (a) Piped Natural Gas
 - (b) Gasoline
 - (c) Compressed Natural Gas
 - (d) Lead-free Petrol
- (xvi) Which of the following issues was addressed by the Earth Summit held in Rio (1992)?
- (a) Biodiversity and climate change
 - (b) Transboundary air pollution
 - (c) Poverty alleviation
 - (d) International trade regulation

Question 2

- (i) Name *any two* devices that reduce industrial air pollution. [2]
- (ii) Mention *any two* reasons for the increase in birth rate of world population. [2]
- (iii) Unplanned and haphazard growth of urban complexes has serious environmental impacts. State *any two* environmental impacts of unplanned urban growth. [2]
- (iv) Write *any two* consequences of soil erosion. [2]

Question 3

- (i) A Genetically Modified Organism (GMO) is an organism whose genome has been engineered in a laboratory. Give *any one* advantage and *any one* disadvantage of such an organism. [2]
- (ii) What is *captive breeding*? Give *any one* advantage of captive breeding. [2]
- (iii) Write *any two* ways in which energy plantations are useful to combat deforestation. [2]
- (iv) What is sewage sludge? Give *one* benefit of using sewage sludge. [2]

Question 4

- (i) *India's toy industry can't meet its domestic demand, so foreign manufacturers export toys to India. These toys are sold at a higher price compared to locally produced toys.* [2]

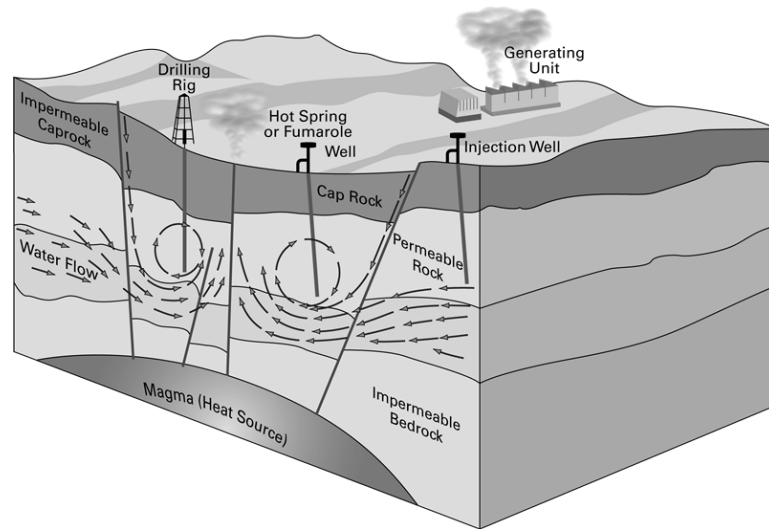
Adapted from: The Times of India, September 2, 2020

Identify the type of practice indicated in the above statements. Write one way of practising it.

- (ii) What is the role of Biotechnology in agriculture to achieve global food security? [2]

(iii) State *any two* advantages of recycling timber. [2]

(iv) Observe the image given below and answer the following questions: [2]



- (a) Identify the type of energy that is obtained from this source.
- (b) Write *one* advantage of this type of energy mentioned in (a) above.

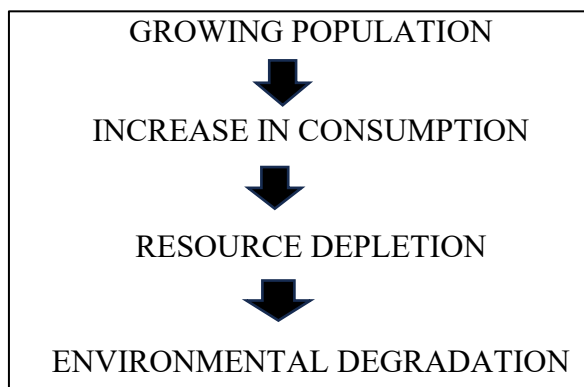
SECTION B (40 Marks)

(Attempt *any four* questions from this *Section*.)

Question 5

- (i) (a) Suggest *any two* economic steps taken by the government to promote clean transport system. [5]
- (b) Describe *any three* ways how proper town planning and zoning can help reduce traffic congestion.

(ii)



[5]

- (a) Explain the connection between growing population and environmental degradation illustrated in the flow chart given above.
- (b) Explain how education helps in controlling the rate of population growth of a country.

Question 6

- (i) Urban areas produce thousands of tons of solid waste every day. A major portion of this waste is dumped in open landfills. Segregation of waste at source, recycling and composting help reduce the amount of garbage that goes to landfills. [5]
 - (a) What is a sanitary landfill?
 - (b) Mention *two* problems caused by improper waste disposal.
 - (c) Explain *two* methods that can help manage solid waste effectively.
- (ii) The famous 'Chipko movement' is a living example of people's participation in environmental conservation. [5]
 - (a) What was the aim of the Chipko movement?
 - (b) Give *two* reasons for the conservation of forests.
 - (c) Write *two* advantages of community participation.

Question 7

- (i) Agroforestry is a farming system in which livestock and trees are grown together. [5]
- (a) Write *two* advantages of Agroforestry.
- (b) What is Conservation Tillage? Write *any two* ways in which this method harms the agricultural fields.
- (ii) (a) Why is dependence on fossil fuel harmful to the environment? [5]
- (b) Suggest *any three* ways by which renewable energy can be harnessed from different sources.

Question 8

- (i) Scientists decide to preserve the seeds of a rare plant in a seed bank, as it faced extinction in its natural habitat. [5]
- (a) Name the type of conservation being used and state one benefit of this method.
- (b) Give *three* reasons for the implementation of the Wildlife Protection Act, 1972 by the Government of India.
- (ii) “*Industrial growth must be balanced with environmental conservation.*” [5]
- (a) Based on this statement, write *two* ways in which industrial growth degrades the environment.
- (b) Suggest *any three* ecofriendly measures that can be taken to prevent environmental degradation.

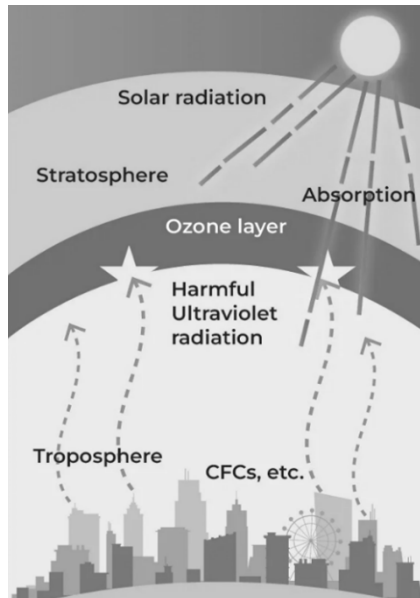
Question 9

- (i) (a) Give *two* advantages of recycling waste materials. [5]
- (b) What are toxic wastes? Mention *two* harmful effects of such wastes.

- (ii) (a) State *two* ways by which the *Integrated Rural Development Programme* aims to remove rural poverty. [5]
- (b) What is *Counter Urbanisation*? Write *two* effects of this process.

Question 10

- (i) Alternative technology, as compared to traditional technology has supported a good life for the people. [5]
- (a) List *two* examples of alternate technology for sustainable development.
- (b) Write *three* applications where the technology of satellite imagery is used to protect the environment.
- (ii) The picture given below shows a section of the earth's atmosphere thinning at the poles of the earth. [5]



- (a) Identify the environmental issue shown.
- (b) Which International Treaty was signed to reduce this effect?
- (c) Write the expanded form of the chemical responsible for this issue.
- (d) What are the *two* effects of UV radiation on human health?