

ENVIRONMENTAL APPLICATIONS

Maximum Marks: 100

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.***

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 12 printed pages.

SECTION A (40 Marks)

(Attempt all questions from this Section.)

Question 1

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

[20]

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

- (i) Identify the region where rainwater is collected and drained through a common point:
- (a) River
 - (b) Creek
 - (c) Waterfall
 - (d) Watershed
- (ii) A waste disposal method which generates an ecofriendly fuel:
- (a) Composting
 - (b) Landfills
 - (c) Open dumping
 - (d) Recycling
- (iii) Identify the set of biodegradable waste from the following options:
- (a) fruit peels, polythene, potato
 - (b) leaves, vegetable, fruit peels
 - (c) vegetables, books, iron chair
 - (d) copies, glass window, leaves

- (iv) Select the correct pair:
- (a) Burning of fuel wood - Cholera
 - (b) Borewell - Indigenous method of rainwater harvesting
 - (c) Biomedical waste - Open dumping
 - (d) DCT - An alternative to existing sewage system
- (v) An example of Clean Energy is:
- (a) Petrol
 - (b) Hydrogen
 - (c) Coal
 - (d) Diesel
- (vi) Hydroelectricity **cannot** be generated by:
- (a) Small dam
 - (b) Check dam
 - (c) Micro dam
 - (d) Mini dam
- (vii) Which of the following statement is **TRUE** about the impact of the depletion of natural resources:
- (a) It will help in the developmental processes
 - (b) Lack of resources for the future generation
 - (c) Increase in Gross Domestic Product (GDP)
 - (d) Increased production in the agriculture sector

- (viii) Which of the following is a conventional source of energy?
- (a) Wind
(b) Sun
(c) Petroleum
(d) Tide
- (ix) **Assertion (A):** Remote sensing satellite is a very good tool which can collect information about the earth's surface, using sensor.
- Reason (R):** The frequency of data collection is very fast as it covers large area in a short duration of time.
- (a) (A) is true but (R) is false.
(b) (A) is false but (R) is true.
(c) (A) and (R) are true and (R) explains (A).
(d) (A) and (R) are true but (R) is not the correct explanation of (A).
- (x) Which of the following are eco-friendly technologies?
1. Solar cooker
 2. E-vehicle
 3. Petrol engine
 4. Thermal power plant
- (a) 1 and 3
(b) 2 and 4
(c) 1 and 2
(d) 3 and 4

(xi) **Assertion (A):** Basel Convention helps in controlling of transboundary movements of hazardous waste and their disposal.

Reason (R): Basel Convention helps to protect human health and environment.

- (a) (A) and (R) are true and (R) explains (A).
- (b) (A) and (R) are true but (R) is not the explanation of (A).
- (c) (A) is false but (R) is true.
- (d) (A) is true but (R) is false.

(xii) An image of hydroelectricity generation is shown below:



The source of hydroelectricity is:

- (a) Falling water
- (b) Turbine
- (c) Generator
- (d) Dam

- (xiii) Natural Resources Accounting (NRA) refers to:
- (a) Accounting of renewable resources
 - (b) Accounting of only non-renewable resources
 - (c) Accounting of natural resources ignoring their ecological value
 - (d) Accounting and assessing the depletion and degradation of natural resources over time.
- (xiv) Which of the following statement is **incorrect** with reference to *appropriate technology*?
- (a) It is affordable and easy to use.
 - (b) It fits the needs of local people and resources.
 - (c) It is a highly advanced technology.
 - (d) It helps to protect the environment and community.
- (xv) Select the correct sequence of the steps followed in Environmental Impact Assessment (EIA).
1. Mitigation
 2. Reporting
 3. Screening
 4. Decision making
- (a) 3, 2, 1, 4
 - (b) 1, 3, 4, 2
 - (c) 2, 1, 3, 4
 - (d) 3, 1, 2, 4

- (xvi) The objective of Ramsar Convention is to:
- (a) Reduce transboundary movement of hazardous waste
 - (b) Prevent the international trade of the endangered species of flora and fauna
 - (c) Protect and conserve biodiversity
 - (d) Protect and conserve the wetlands

(xvii)



The picture given above shows a liquid coming out of the garbage heap after rainwater falls on it. Name the liquid.

- (a) Rain acid
 - (b) Run-off
 - (c) Leachate
 - (d) Sewage
- (xviii) Identify the type of waste which may cause genetic and somatic variations in humans:
- (a) E-waste
 - (b) Mining waste
 - (c) Radioactive waste
 - (d) Biomedical waste

- (xix) The deposition of eroded soil at the bottom of aquatic bodies is called:
- (a) Leaching
 - (b) Weathering
 - (c) Siltation
 - (d) Glaciation
- (xx) In the term North-South divide, South Means:
- (a) Developed countries
 - (b) Developing countries
 - (c) Australia
 - (d) India

Question 2

- (i) What is *sustainable development*? [2]
- (ii) What type of waste is treated biologically and how? [2]
- (iii) List *any three* methods to prevent generation of wastelands. [3]
- (iv) Give *any three* advantages of village community based self-sufficient growth. [3]

Question 3

- (i) Write *any two* natural causes of soil erosion. [2]
- (ii) What is *recession*? [2]
- (iii) State *any three* limitations of End Of Pipe (EOP) treatment. [3]

(iv)

[3]



Study the picture given above of a waste treatment plant.

- (a) Identify the waste treatment method.
- (b) State *any one* advantage and *any one* disadvantage of this method.

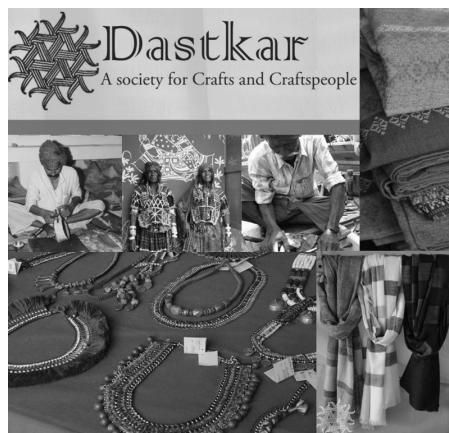
SECTION B (60 Marks)

(Answer any four questions from this Section.)

Question 4

(i) Study the image given below and answer the questions that follows:

[5]



- (a) Who is the founder of Dastkar?
- (b) Discuss *any four* points how initiatives like Dastkar help in preserving traditional Indian crafts.

- (ii) Name *any three* soil conservation strategies. Give *any two* reasons for soil conservation. [5]
- (iii) The Taj Trapezium Zone (TTZ) is a designated area around the Taj Mahal to protect this UNESCO World Heritage site and other monuments from pollution and environmental degradation. [5]
- (a) Name the *other two* monuments located in the TTZ apart from the Taj Mahal.
- (b) Mention *any three* key regulatory measures that have been implemented in the TTZ to mitigate pollution and protect the Taj Mahal.

Question 5

- (i) (a) Name the air pollution device which works on the principle of mechanical filtration. [5]
- (b) Describe the working of the device you have named in (a) above.
- (ii) *Forests are rapidly disappearing to meet the growing demands of National development. To save the forests several alternatives are being used for fuel wood and for furniture industry.* [5]
- Give *any five* reasons for forest conservation.
- (iii) *Panchayati Raj is a system of governance in which gram panchayats are the basic units of administration.* [5]
- List *any five* functions of Panchayat for the village development.

Question 6

- (i) (a) Name *any two* rainwater harvesting techniques used in Rajasthan. [5]
- (b) Describe the structure of *any one* rainwater harvesting technique of Rajasthan.
- (ii) Name the founders of Gandhigram. Mention *any three* objectives of Gandhigram. [5]
- (iii) *Community forestry is a branch of forestry that plays a significant role in forest management and land use decisions.* [5]
- In this context, mention *any five* ways in which community forestry is helping the local people.

Question 7

- (i) A lot of water gets wasted due to flush system in toilets. One of the methods to save water is Dry Compost Toilet. Explain the working of Dry Compost Toilet. [5]
- (ii) Chennai faces severe water shortage due to draught and over dependence on groundwater. To tackle this problem, the city initiated large scale wastewater recycling to meet industrial and non-potable water needs. In this context, state *any five* benefits of water recycling. [5]
- (iii) In rural parts of India, *check dams* and *bunds* are very common practices. [5]
- (a) What is a check dam?
- (b) Write *any three* advantages of contour bunds.

Question 8

- (i) Enlist *any five* ways to achieve sustainability in a developing country like India. [5]
- (ii) What is grass root planning? State *any three* advantages of it. [5]
- (iii) (a) Name *any two* major sectors where Environmental Impact Assessment (EIA) is mandatory. [5]
- (b) State *any three* roles of EIA.

Question 9

- (i) Globalisation has made India a significant exporter of textiles and garments, catering to markets in Europe, USA and South East Asia. [5]
- State *any five* impacts of Globalisation on developing countries.
- (ii) Mr. Agarwal has shifted in a housing complex with his family. He has noticed one open dumping area beside his house and has become concerned. In this context, discuss *any five* impacts of waste accumulation. [5]

- (iii)



[5]

The picture above shows the harnessing of renewable resources of energy. List *any three* advantages and two disadvantages of using this type of renewable source of energy.