

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.

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

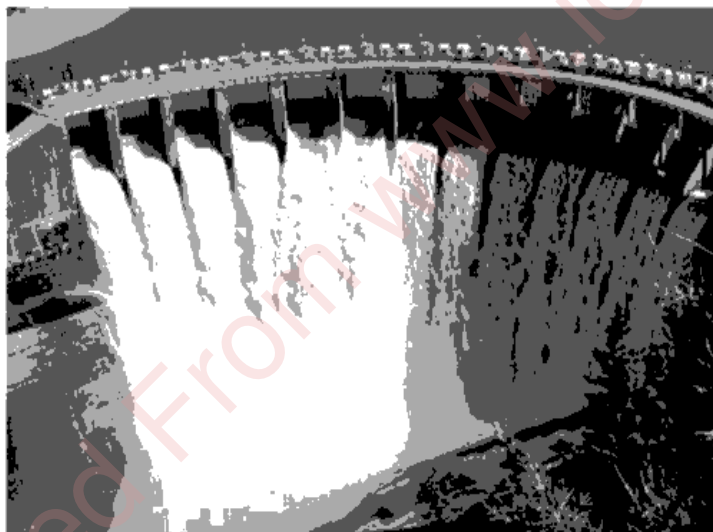
- (a) 1 and 3
- (b) 2 and 4
- (c) 1 and 2
- (d) 3 and 4

(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:



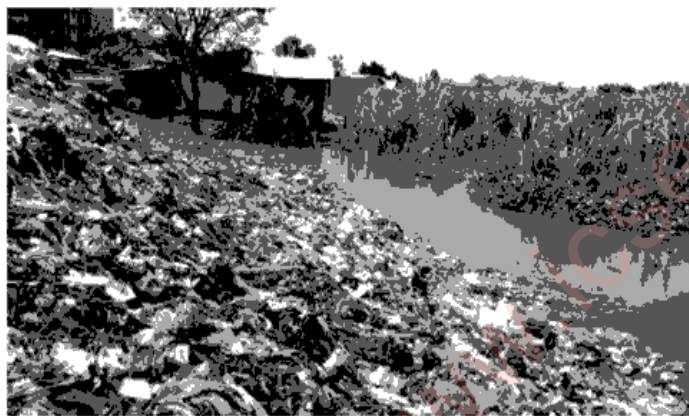
The source of hydroelectricity is:

- (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.

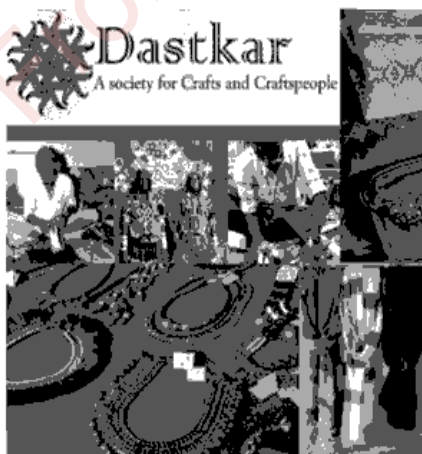
SECTION B (60 Marks)

(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.