

ENVIRONMENTAL SCIENCE

Maximum Marks: 80

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first 15 minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*

The intended marks for questions or parts of questions are given in brackets [].

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 mechanical device which reduces air pollution from industries is:
- (a) Two stroke engines
 - (b) Catalytic converter
 - (c) Solar panels
 - (d) Electrostatic precipitator
- (ii) Captive breeding is a means:
- (a) to protect wild animals in forests
 - (b) to restore extinct species
 - (c) to breed wild animals in zoos and botanical gardens
 - (d) to allow animals to breed in natural habitat

This paper consists of 8 printed pages.

(iii) Choose the **incorrect pair** from the following:

- (a) Organic fertilizers → Agricultural residue
- (b) Composting → Organic wastes
- (c) Vermicomposting → Earthworms
- (d) Green manure → Chemical compounds

(iv) An ecocity is:

- (a) a satellite city of an urban area
- (b) a rural area linked to a city
- (c) a less populated city
- (d) a sustainable city

(v) Match each item in COLUMN I with one item in COLUMN II and choose the correct answer:

COLUMN I

COLUMN II

- | | |
|----------------------------------|------------------------------|
| 1. Montreal Protocol | A. Empowerment of women |
| 2. Cairo Conference | B. Protection of animals |
| 3. Global Environmental Facility | C. Funds for climate change |
| 4. CITES | D. Ozone depleted substances |

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

(vi) The reason for poor standard of living and malnutrition in India is:

- (a) Over population
- (b) Environmental conditions
- (c) Absence of natural resources
- (d) Poor economy of rural India

(vii) **Assertion (A):** MNC's made better infrastructures, brought employment and reduced the gap between the developed and developing nations.

Reason(R): MNC's exploited the resources and acquired land, thus destroying the ecology.

- (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

(viii) Which source of electricity generation is least harmful to the environment?

- (a) Coal
- (b) Nuclear energy
- (c) Gasoline
- (d) Diesel

(ix) The figure given alongside refers to a major International Conference on the environment. This was held in:

- (a) Kyoto in Japan
- (b) Rio de Janeiro in Brazil
- (c) Cairo in Egypt
- (d) Montreal in Canada



(x) Biomass refers to:

- (a) Plant waste, animal waste and agricultural residue
- (b) Industrial waste
- (c) Biogas plant
- (d) Fertilizers and pesticides

(xi) **Assertion (A):** The satellite imagery is used for collecting data on environmental damage.

Reason (R): This data collection helps in marketing and selling of forest products.

- (a) Both A and R are true statements
- (b) A is false and R is true
- (c) Both A and R are true and R is the correct reason for A
- (d) A is true but R is not the correct reason for A

(xii) The main objective of IRDP is:

- (a) Improvement in banking
- (b) Alleviation of rural poverty
- (c) Development of rural youth
- (d) Employment to retired persons

(xiii) 'Many urban centres have landfill sites, and often, waste is not disposed in these sites.' In this context which of the following improves solid waste management:

- (a) Teaching people the importance of segregation
- (b) Hospital waste to be gathered collectively
- (c) Composting is a bad option
- (d) Staff handling the wastes should be discouraged

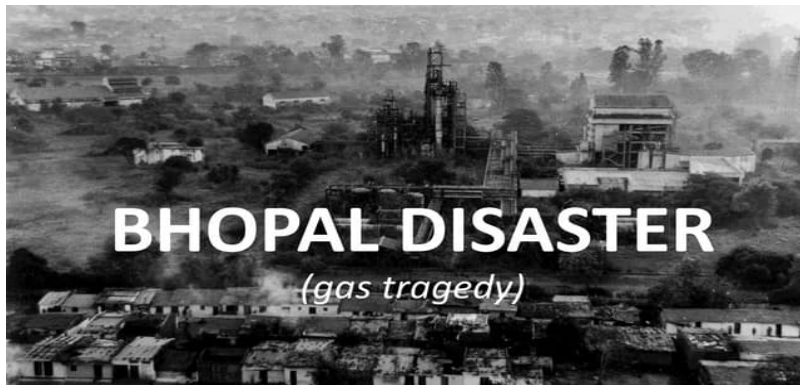
(xiv) Extensive planting of trees on barren land to increase forest cover is called:

- (a) Reforestation
- (b) Afforestation
- (c) Deforestation
- (d) Energy plantations

(xv) Given below are few methods of conservation of resources. Choose the correct method of **soil** conservation:

- (a) Metal recycling
- (b) Triple drip irrigation
- (c) Mulching and dry farming
- (d) Shifting cultivation

(xvi)



What was the main cause of this tragedy?

- (a) The factory was located in an isolated area
- (b) The company exported tested and good technology to the Indian plant
- (c) Trained and knowledgeable staff
- (d) Safety checks were less frequent due to shortage of staff

Question 2

- (i) Why is LPG more popular to use as a fuel? Write *two* advantages of it. [2]
- (ii) What are the *two* causes for rise of population in India? [2]
- (iii) “*Most slum residents in urban area are better off than the rural poor.*” Give *any two* advantages the slum residents have over rural poor. [2]
- (iv) State *any two* reasons to prove landfills are not environment friendly. [2]

Question 3

- (i) Give *any two* advantages of efficient *land use planning*. [2]
- (ii) How is organic manure made? State *one* benefit of organic manure. [2]
- (iii) State *two* steps that must be taken to achieve global food security. [2]
- (iv) Write *one* advantage and *one* disadvantage of solar energy. [2]

Question 4

- (i) Mention *any two* principles of Sustainable development. [2]
- (ii) Name the energy that is produced by the rise and fall of ocean water. [2]
What is the advantage of the above stated energy?
- (iii) What are biodegradable wastes? [2]
How are these biodegradable wastes helpful?
- (iv) Write *any two* contributions of private enterprises in city improvement. [2]

SECTION B (40 Marks)

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

Question 5

- (i) The vehicular traffic is a major problem in metro cities. [5]
Write *two* ways in which traffic congestion affects environment.
Suggest *three* methods to reduce traffic on roads.
- (ii) Sanitary land fill and Incineration are *two* methods of waste disposal. [5]
Briefly describe the *two* processes.
Suggest any other ecofriendly method of waste disposal for biodegradable wastes.

Question 6

- (i) What is terracing? [5]
Where is it practiced?
State *three* advantages of terracing.
- (ii) 'Biogas is produced by fermentation of biodegradable wastes.' [5]
Mention *any three* advantages and *any two* disadvantages of using biogas.

Question 7

- (i) What are the aims of Integrated Pest Management (IPM)? [5]
Write *three* advantages of IPM.
- (ii) Differentiate between ex-situ and in-situ conservation. [5]
Give *one* example of in-situ conservation.
Write *any two* advantages of in-situ conservation.

Question 8

- (i) List *any two* ecological impacts of Urbanisation. [5]
What *three* measures can be adopted to strengthen rural-urban linkage?
- (ii) Write the expanded form of GMO. [5]
Write *two* benefits and *two* problems associated with these organisms.

Question 9

- (i) What is Community Forestry? [5]
State *two* objectives of community forestry.
How does this forestry benefit the community?
- (ii) What is GEF? [5]
Explain *any two* areas of global environmental issues which is addressed by GEF.

Question 10

(i) Suggest *five* methods by which we can reduce cutting of trees or combat deforestation. [5]

(ii) Read the following paragraph and answer the following questions. [5]

Counter urbanization is a demographic and social process. Of late urbanization process in India is witnessing counter – urbanization in its life cycle. The counter-urbanization increases urbanism in physically rural areas. The growth in information technology, increase in car ownership over the last 40 years, more mobility, new business parks on the edge of cities, more people tend to move when they retire and so on are factors responsible for counter urbanization.

(Source: <https://www.insightsonindia.com/2019/03/21>)

- (a) Mention *any two* causes associated with Counter Urbanization as given in the paragraph.
- (b) Write *two* more causes, other than the ones mentioned here, which you think lead people to return to rural areas.
- (c) What changes will be observed in rural areas as an effect of counter urbanization?