

Signature and Name of Invigilator

1. (Signature) _____

(Name) _____

2. (Signature) _____

(Name) _____

Roll No.

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(In figures as per admission card)

Roll No. _____
(In words)

Test Booklet No. _____

D-8908

PAPER – III

Time : 2½ hours] ENVIRONMENTAL SCIENCE [Maximum Marks : 200

Number of Pages in this Booklet : 32

Number of Questions in this Booklet : 26

Instructions for the Candidates

1. Write your roll number in the space provided on the top of this page.
2. Answers to short answer/essay type questions are to be given in the space provided below each question or after the questions in the Test Booklet itself.
No Additional Sheets are to be used.
3. At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :
 - (i) To have access to the Test Booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
 - (ii) **Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the question booklet will be replaced nor any extra time will be given.**
4. Read instructions given inside carefully.
5. One page is attached for Rough Work at the end of the booklet before the Evaluation Sheet.
6. If you write your name or put any mark on any part of the Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.
7. You have to return the Test booklet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall.
8. **Use only Blue/Black Ball point pen.**
9. **Use of any calculator or log table etc. is prohibited.**
10. **There is NO negative marking.**

परीक्षार्थियों के लिए निर्देश

1. पहले पृष्ठ के ऊपर नियत स्थान पर अपना रोल नम्बर लिखिए।
2. लघु प्रश्न तथा निबंध प्रकार के प्रश्नों के उत्तर, प्रत्येक प्रश्न के नीचे या प्रश्नों के बाद में दिये हुये रिक्त स्थान पर ही लिखिये।
इसके लिए कोई अतिरिक्त कागज का उपयोग नहीं करना है।
3. परीक्षा प्रारम्भ होने पर, प्रश्न-पुस्तिका आपको दे दी जायेगी। पहले पाँच मिनट आपको प्रश्न-पुस्तिका खोलने तथा उसकी निम्नलिखित जाँच के लिए दिये जायेंगे जिसकी जाँच आपको अवश्य करनी है :
 - (i) प्रश्न-पुस्तिका खोलने के लिए उसके कवर पेज पर लगी सील को फाड़ लें। खुली हुई या बिना स्टीकर-सील की पुस्तिका स्वीकार न करें।
 - (ii) कवर पृष्ठ पर छपे निर्देशानुसार प्रश्न-पुस्तिका के पृष्ठ तथा प्रश्नों की संख्या को अच्छी तरह चैक कर लें कि ये पूरे हैं। दोषपूर्ण पुस्तिका जिनमें पृष्ठ/प्रश्न कम हों या दुबारा आ गये हों या सीरियल में न हों अर्थात् किसी भी प्रकार की त्रुटिपूर्ण पुस्तिका स्वीकार न करें तथा उसी समय उसे लौटाकर उसके स्थान पर दूसरी सही प्रश्न-पुस्तिका ले लें। इसके लिए आपको पाँच मिनट दिये जायेंगे। उसके बाद न तो आपकी प्रश्न-पुस्तिका वापस ली जायेगी और न ही आपको अतिरिक्त समय दिया जायेगा।
4. अन्दर दिये गये निर्देशों को ध्यानपूर्वक पढ़ें।
5. उत्तर-पुस्तिका के अन्त में कच्चा काम (Rough Work) करने के लिए मूल्यांकन शीट से पहले एक पृष्ठ दिया हुआ है।
6. यदि आप उत्तर-पुस्तिका पर अपना नाम या ऐसा कोई भी निशान जिससे आपकी पहचान हो सके, किसी भी भाग पर दर्शाते या अंकित करते हैं तो परीक्षा के लिये अयोग्य घोषित कर दिये जायेंगे।
7. आपको परीक्षा समाप्त होने पर उत्तर-पुस्तिका निरीक्षक महोदय को लौटाना आवश्यक है और इसे परीक्षा समाप्ति के बाद अपने साथ परीक्षा भवन से बाहर न लेकर जायें।
8. केवल नीले / काले बाल प्वाइंट पेन का ही इस्तेमाल करें।
9. किसी भी प्रकार का संगणक (कैलकुलेटर) या लाग टेबल आदि का प्रयोग वर्जित है।
10. गलत उत्तर के लिए अंक नहीं काटे जायेंगे।

ENVIRONMENTAL SCIENCE

PAPER – III

NOTE: This paper is of two hundred (200) marks containing four (4) sections. Candidates are required to attempt the questions contained in these sections according to the detailed instructions given therein.

SECTION - I

Note : This section contains five (5) questions based on the following paragraph. Each question should be answered in about thirty (30) words and each carries five (5) marks.

(5×5=25 marks)

The eutrophication is the nutrient enrichment in a water body. A freshly formed body of water has a very low concentration of plant nutrients. Little plant life develops in such waters. Low primary production limits animal communities as well. Surface runoffs, wind borne dust and organic debris, excreta and exudates of animals which use water, slowly raise the nutrient content. Bacteria and cyanobacteria fix atmospheric nitrogen. Phosphates in rocks and detritus at the bottom are solubilized by the microbial activity. In gradual stages the nutrient status of the water improves. A moderate population of plants, animals, aquatic fungi and other microorganisms develop. With the passage of time further nutrient enrichment occurs. Dense population of plants, phytoplanktons and animals now appears. At this stage, the aquatic system becomes highly productive in terms of fish yield and other produce. Based on nutrient status and productivity an aquatic system can be classified into the following three types : The oligotrophic or water with poor nutrient status and productivity; the mesotrophic or water with intermediate or moderate nutrient status and productivity; and eutrophic or water with rich nutrient status with high productivity. In some eutrophic waters dense population of planktonic algae develops, water turns green followed by unpleasant odour referred to as water bloom.

Answer the following questions :

1. Define the term eutrophication.

2. What results eutrophication ?

3. Which are the organisms that fix up nitrogen ?

4. Name the types of eutrophication.

5. What is water bloom ?

SECTION - II

Note : This section contains fifteen (15) questions, each to be answered in about thirty (30) words. Each question carries five (5) marks.

(5x15=75 marks)

6. Repetitive DNA

7. Transgenic plants

8. 'Hot spots' of biodiversity

9. Acid rain

10. Air quality monitoring (A A Q)

11. Marine spillage

12. Role of algae in biodiesel production

13. Scanning Electron Microscopy (SEM)

14. Applications of Diatoms

15. Internal structure of Earth

16. Carrying capacity of a river

17. Biomagnification and bioaccumulation

18. Environmental audit

19. Carbonate compensation depth

20. Water quality index

SECTION - III

Note : This section contains five (5) questions. Each question carries twelve (12) marks and is to be answered in about two hundred (200) words.
(12x5=60 marks)

- 21. Ecological succession

- 22. Kyoto Protocol

- 23. Plastic waste management

- 24. Utility of biofertilizers in agriculture

- 25. Use of EIA in environment management

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SECTION - IV

Note : This section consists of one essay type question of forty (40) marks to be answered in about one thousand (1000) words on any one of the following topics.

(40x1=40 marks)

26. Write an essay on *any one* of the following :

(a) Groundwater provinces and resources of India.

OR

(b) Environmental aspects related to large dams such as Tehri Dam or Narmada Dam.

OR

(c) Mineral resources of India.

OR

(d) Recycling of agricultural waste and bioremediation.

OR

(e) Causes of air pollution and the role played by greenhouse gases and aerosols.

OR

(f) What are natural hazards ? Discuss causes effects, mitigation of floods and droughts in India.

OR

(g) "Nuclear energy is important for energy needs of India" - Critically evaluate the statement.

OR

(h) Give a descriptive account of evolution of organisms for their adaptability in present day environment.

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FOR OFFICE USE ONLY							
Marks Obtained							
Question Number	Marks Obtained	Question Number	Marks Obtained	Question Number	Marks Obtained	Question Number	Marks Obtained
1		26		51		76	
2		27		52		77	
3		28		53		78	
4		29		54		79	
5		30		55		80	
6		31		56		81	
7		32		57		82	
8		33		58		83	
9		34		59		84	
10		35		60		85	
11		36		61		86	
12		37		62		87	
13		38		63		88	
14		39		64		89	
15		40		65		90	
16		41		66		91	
17		42		67		92	
18		43		68		93	
19		44		69		94	
20		45		70		95	
21		46		71		96	
22		47		72		97	
23		48		73		98	
24		49		74		99	
25		50		75		100	

Total Marks Obtained (in words)

(in figures)

Signature & Name of the Coordinator

(Evaluation) Date