

## UGC NET Paper 3 December 24, 2012 Shift 1 Environmental Sciences Question Paper

**PAPER-III**  
**ENVIRONMENTAL SCIENCE**

**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)

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Time : 2 1/2 hours]

[Maximum Marks : 200

Number of Pages in this Booklet : 32

Number of Questions in this Booklet : 19

**Instructions for the Candidates**

- Write your roll number in the space provided on the top of this page.
- Answer 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.**

- 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 :

- To have access to the Question 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.
- 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.**

- Read instructions given inside carefully.
- One page is attached for Rough Work at the end of the booklet before the Evaluation Sheet.
- If you write your Name, Roll Number, Phone Number 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, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
- 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.
- Use only Blue/Black Ball point pen.**
- Use of any calculator or log table etc., is prohibited.**

**परीक्षार्थियों के लिए निर्देश**

- पहले पृष्ठ के ऊपर नियत स्थान पर अपना रोल नम्बर लिखिए ।
- लघु प्रश्न तथा निबंध प्रकार के प्रश्नों के उत्तर, प्रत्येक प्रश्न के नीचे या प्रश्नों के बाद में दिये हुए रिक्त स्थान पर ही लिखिये ।  
**इसके लिए कोई अतिरिक्त कागज का उपयोग नहीं करना है ।**
- 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 :
  - प्रश्न-पुस्तिका खोलने के लिए उसके कवर पेज पर लगी कागज की सील को फाड़ लें । खुली हुई या बिना स्टीकर-सील की पुस्तिका स्वीकार न करें ।
  - कवर पृष्ठ पर छपे निर्देशानुसार प्रश्न-पुस्तिका के पृष्ठ तथा प्रश्नों की संख्या को अच्छी तरह चेक 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 ।**
- अन्दर दिये गये निर्देशों को ध्यानपूर्वक पढ़ें ।
- उत्तर-पुस्तिका के अन्त में कच्चा काम (Rough Work) करने के लिए मूल्यांकन शीट से पहले एक पृष्ठ दिया हुआ है ।
- यदि आप उत्तर-पुस्तिका पर नियत स्थान के अलावा अपना नाम, रोल नम्बर, फोन नम्बर या कोई भी ऐसा चिह्न जिससे आपकी पहचान हो सके, अंकित करते हैं अथवा अभद्र भाषा का प्रयोग करते हैं, या कोई अन्य अनुचित साधन का प्रयोग करते हैं, तो परीक्षा के लिये अयोग्य घोषित किये जा सकते हैं ।
- 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 ।
- केवल नीले/काले बाल प्वाइंट पेन का ही इस्तेमाल करें ।**
- किसी भी प्रकार का संगणक (केलकुलेटर) या लॉग टेबल आदि का प्रयोग वर्जित है ।**

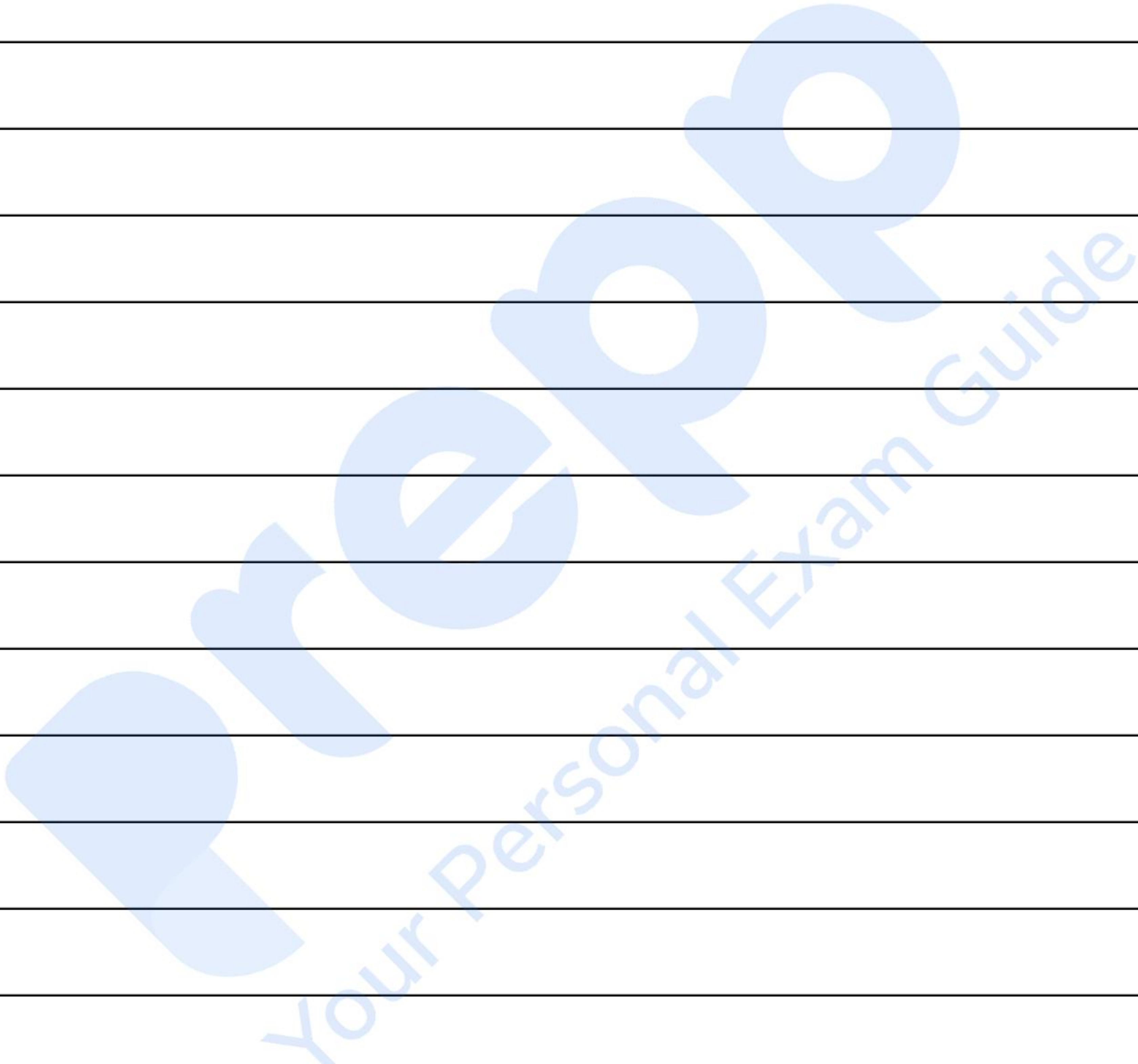
**ENVIRONMENTAL SCIENCE  
PAPER – III**

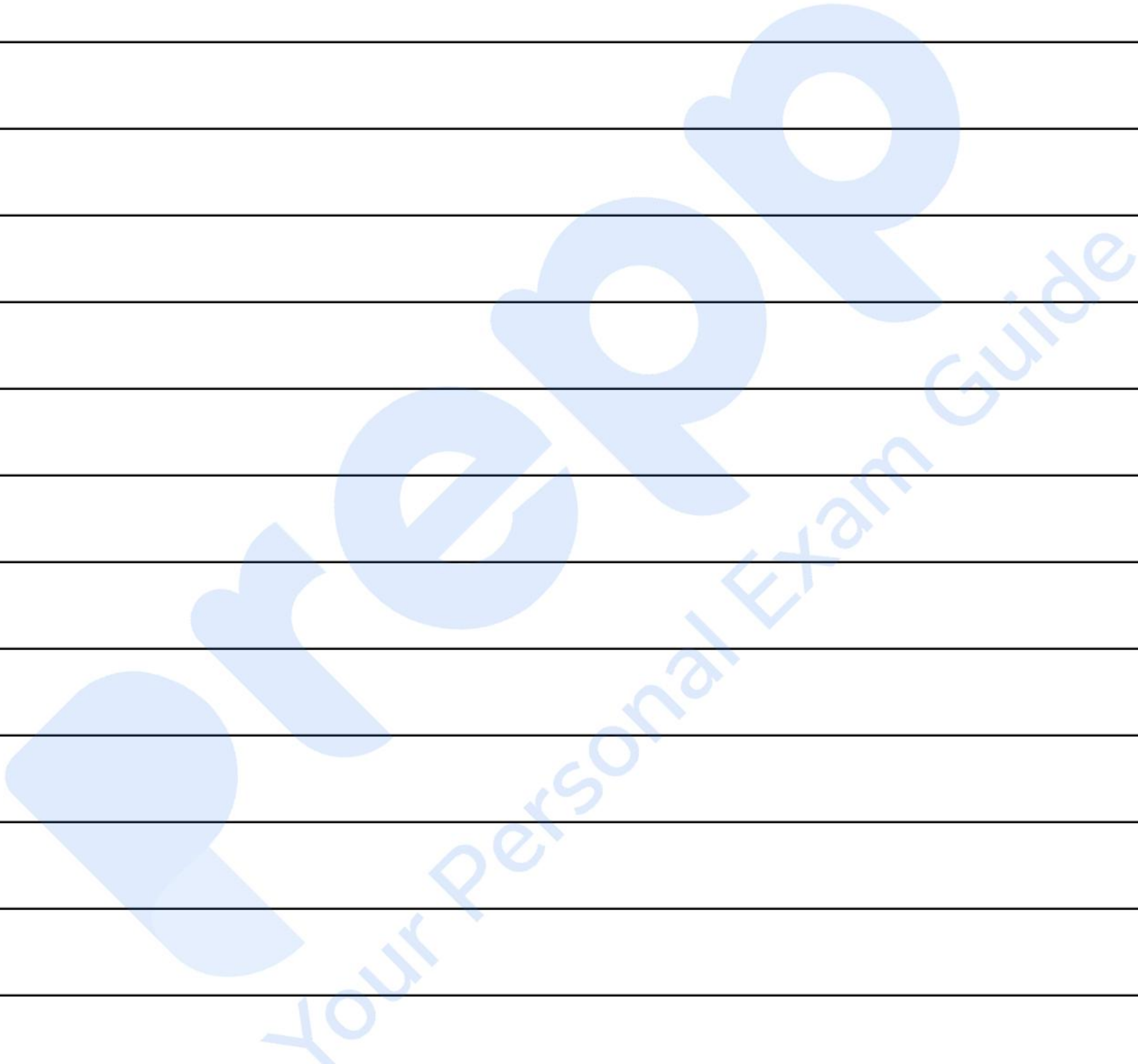
**Note :** This paper is of **two hundred (200)** marks containing **four (4)** sections. Candidates are required to attempt the questions contained in these sections according to the detailed instructions given therein.

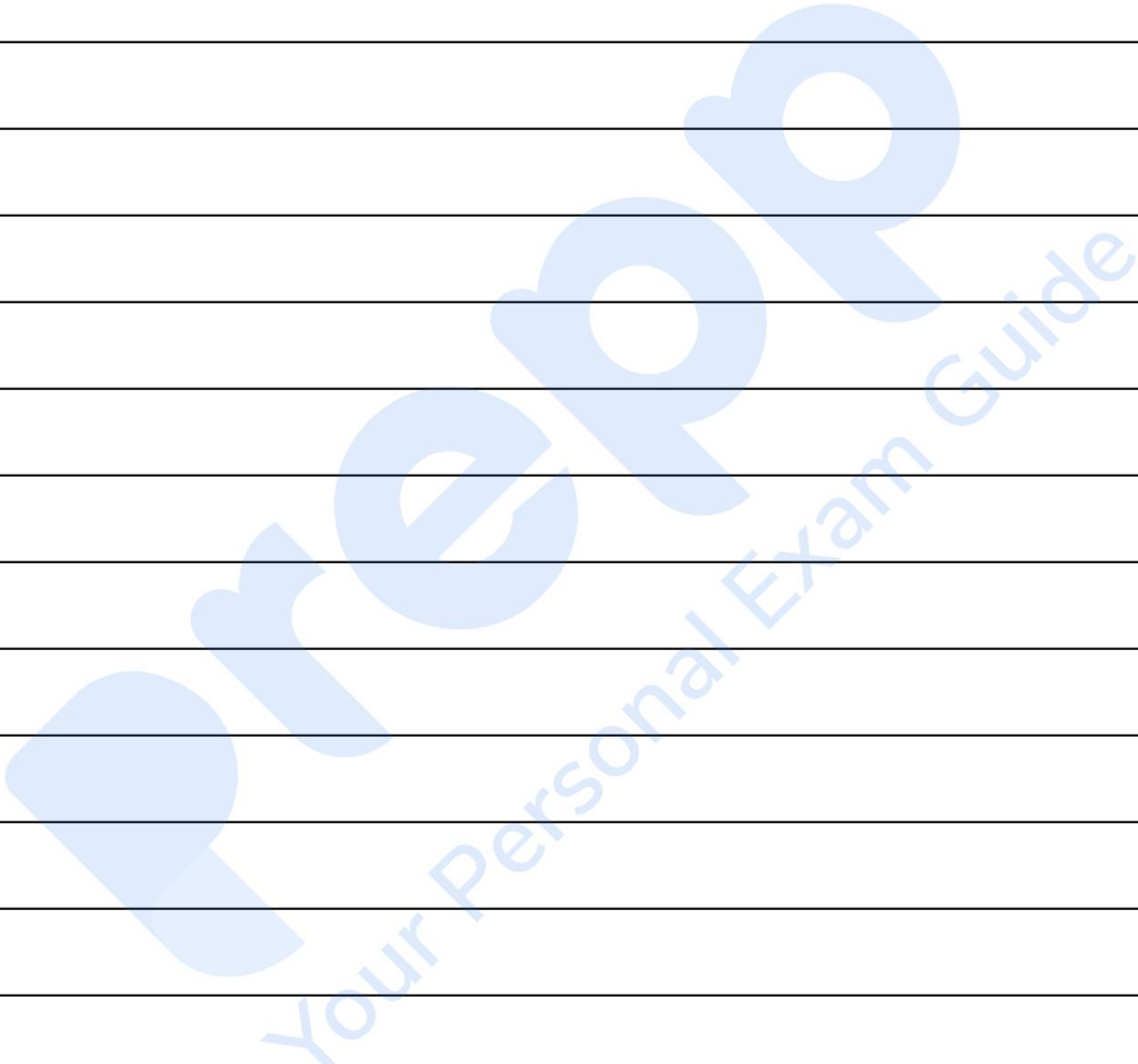
**Answer to all questions must be written in English only.**

**Note :** This section consists of **two** essay type questions of **twenty (20)** marks each, to be answered in about **five hundred (500)** words each. **(2 × 20 = 40 Marks)**

## Applications of GIS and Remote Sensing in water resource management.







2. **Write an essay on :**

Sources and effects of unsaturated and saturated hydrocarbons in the atmosphere.

**OR**

Environmental Ethics and Global imperatives.

**OR**

Recent trends in Biodiversity conservation.

**OR**

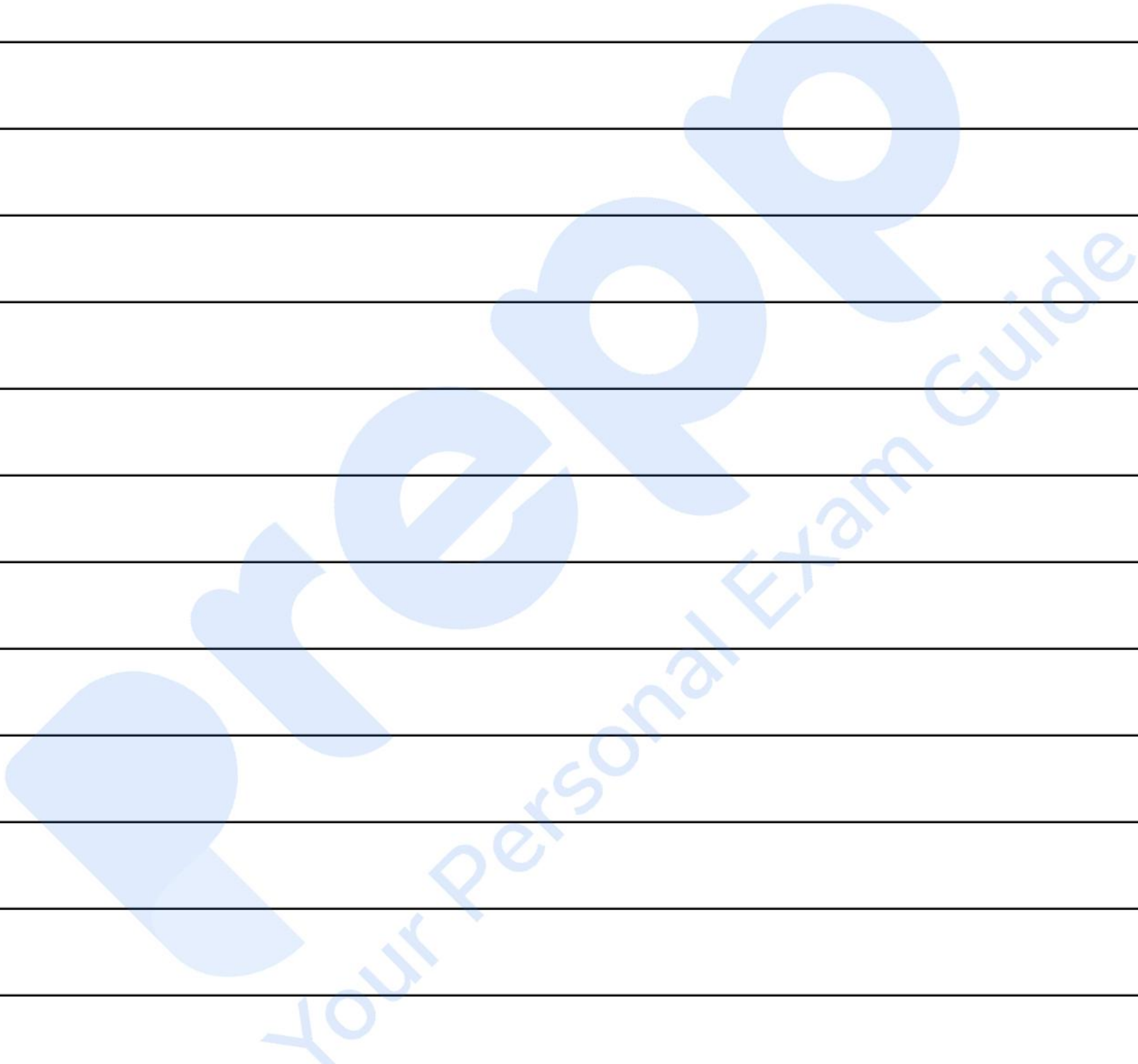
Pros and cons of Genetically modified plants.

**OR**

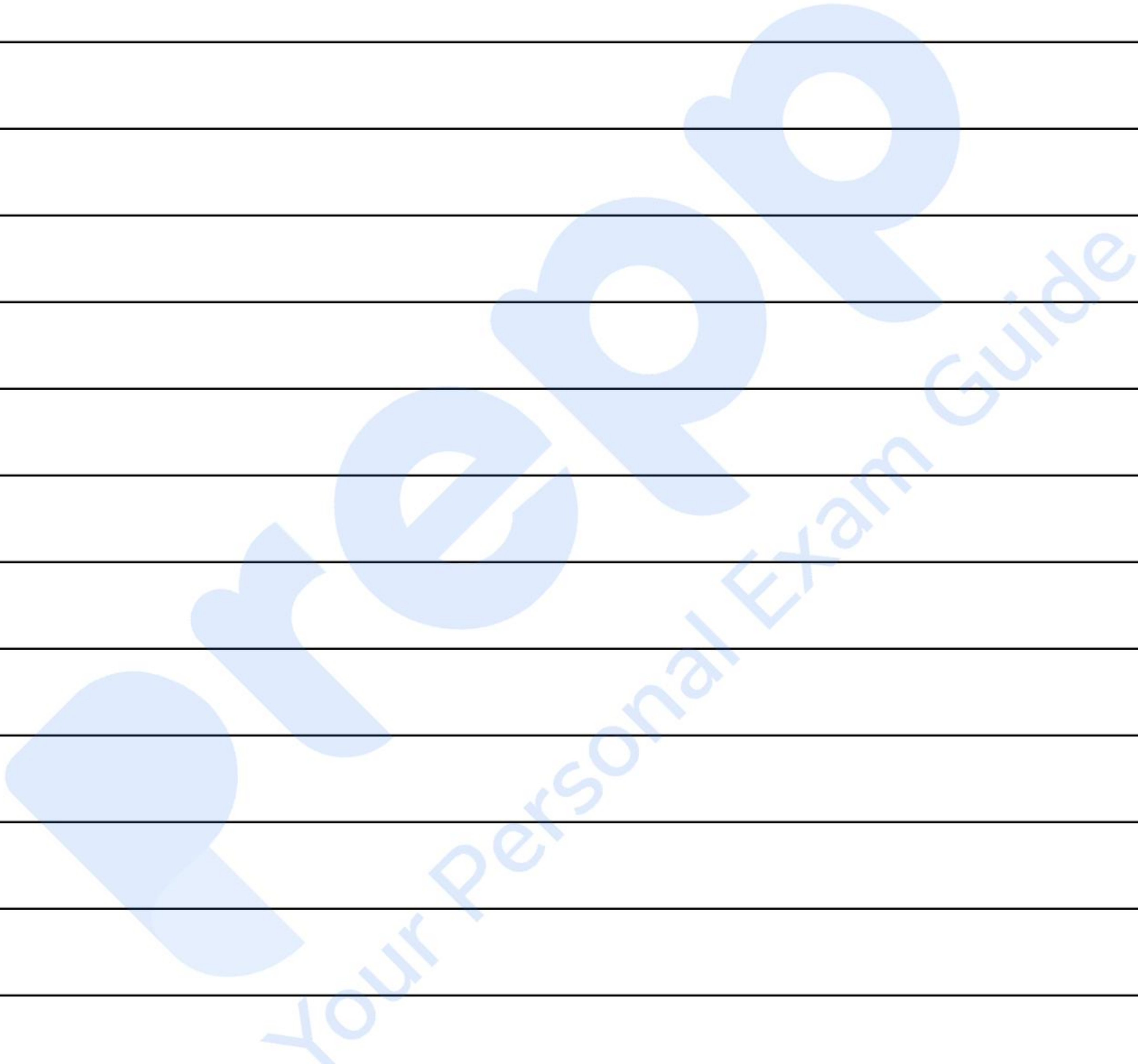
Jurisdiction and powers of National Environmental Appellate Authority.

**OR**

Role of soil microorganisms.

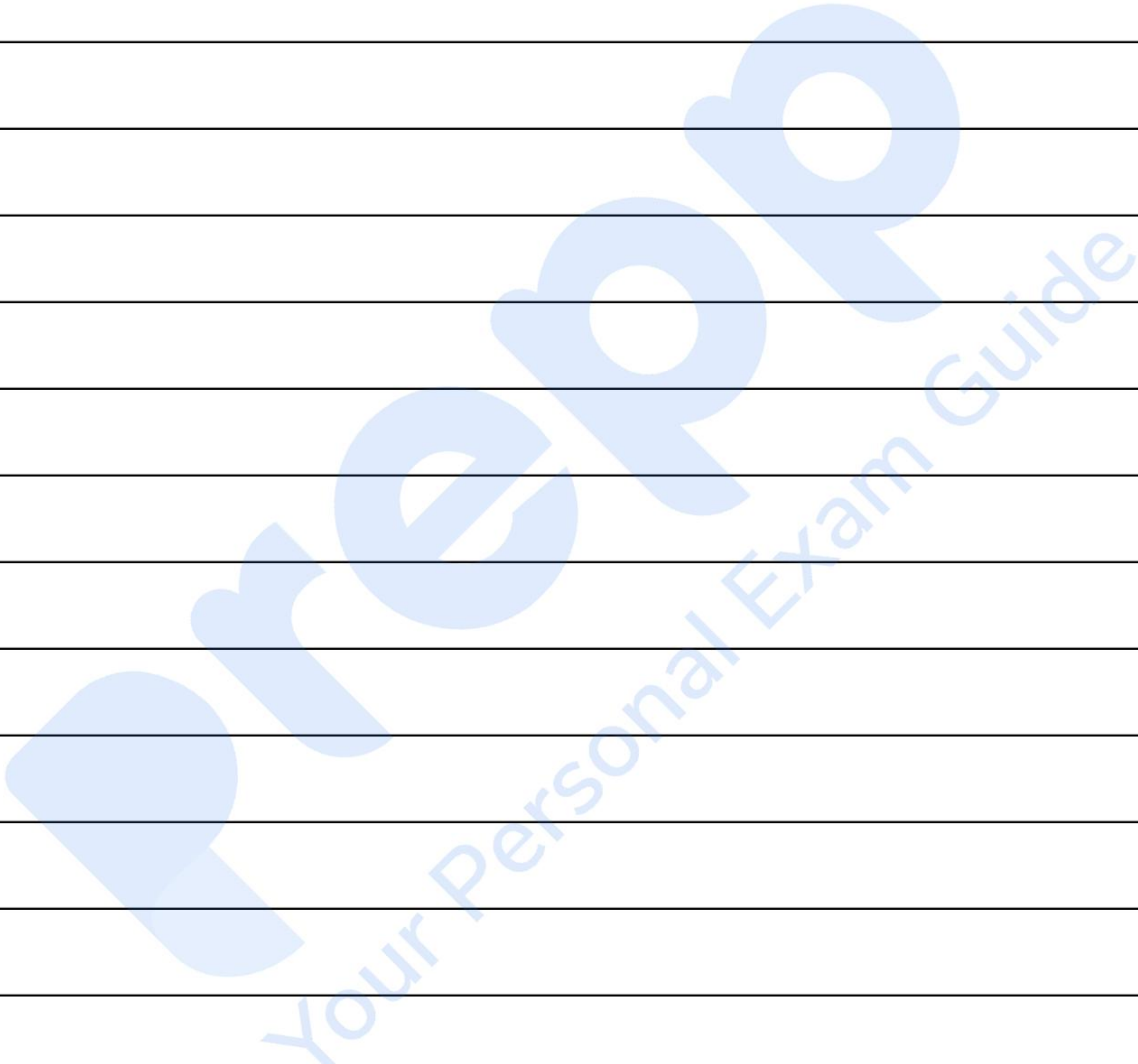


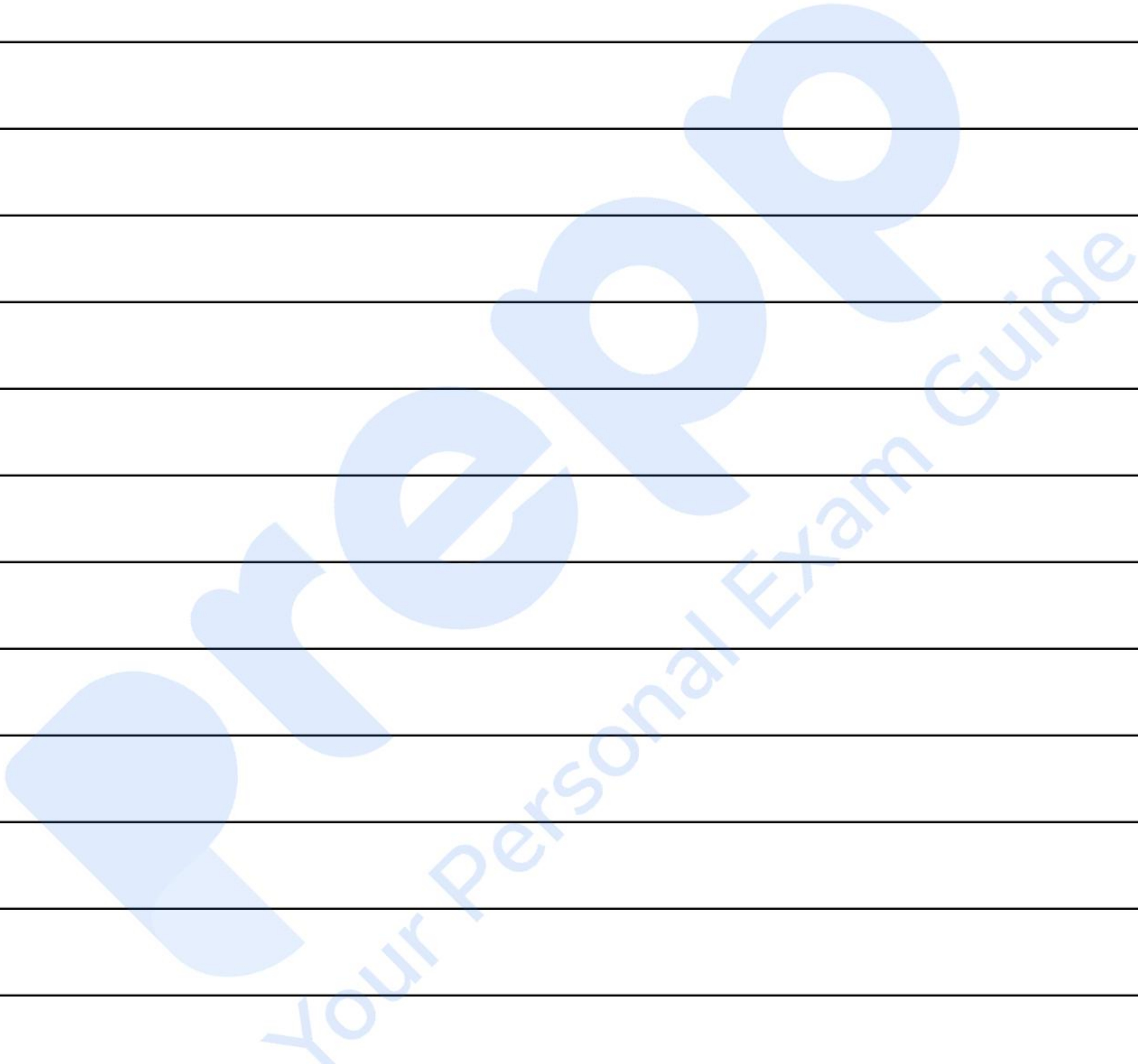


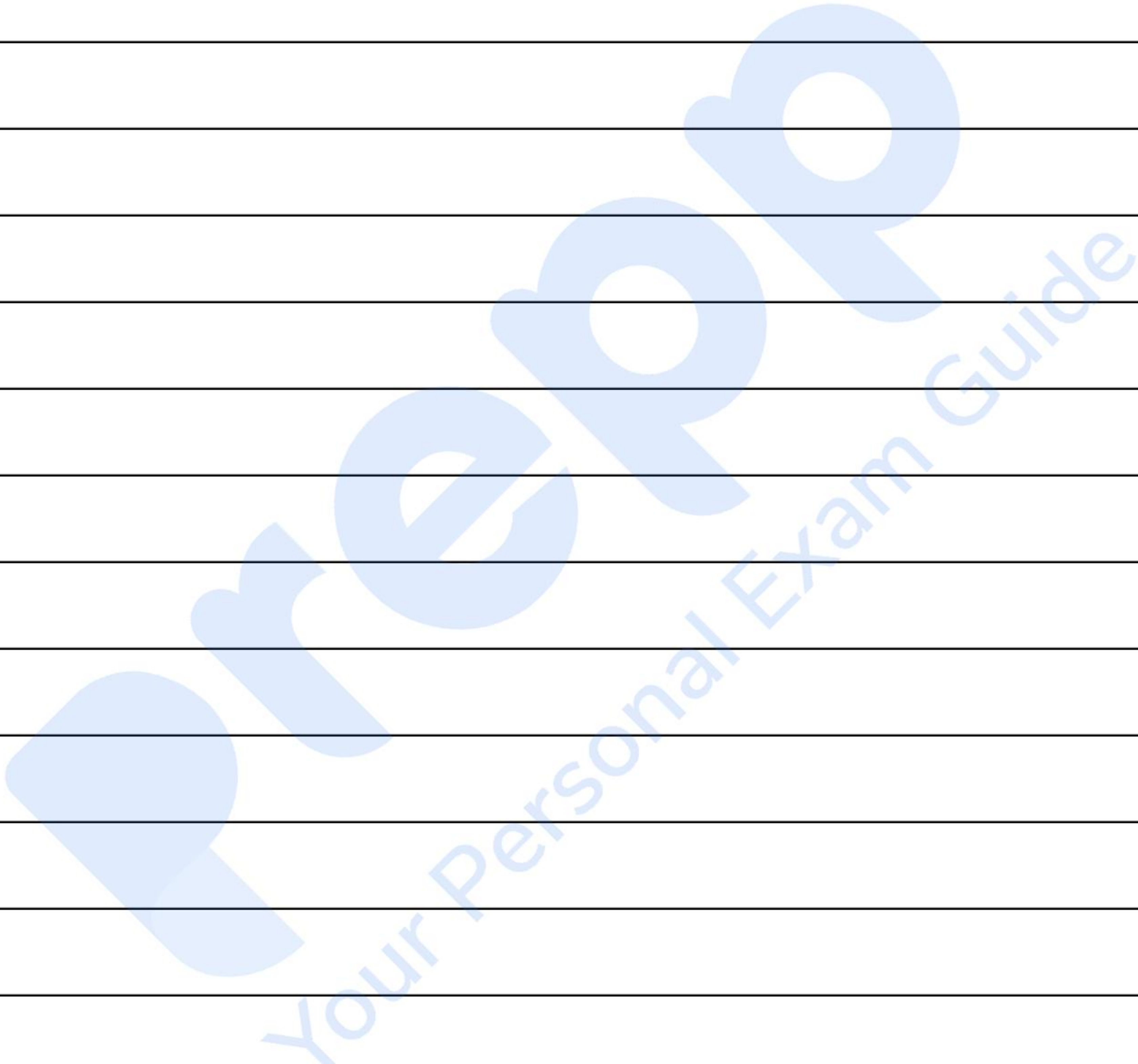


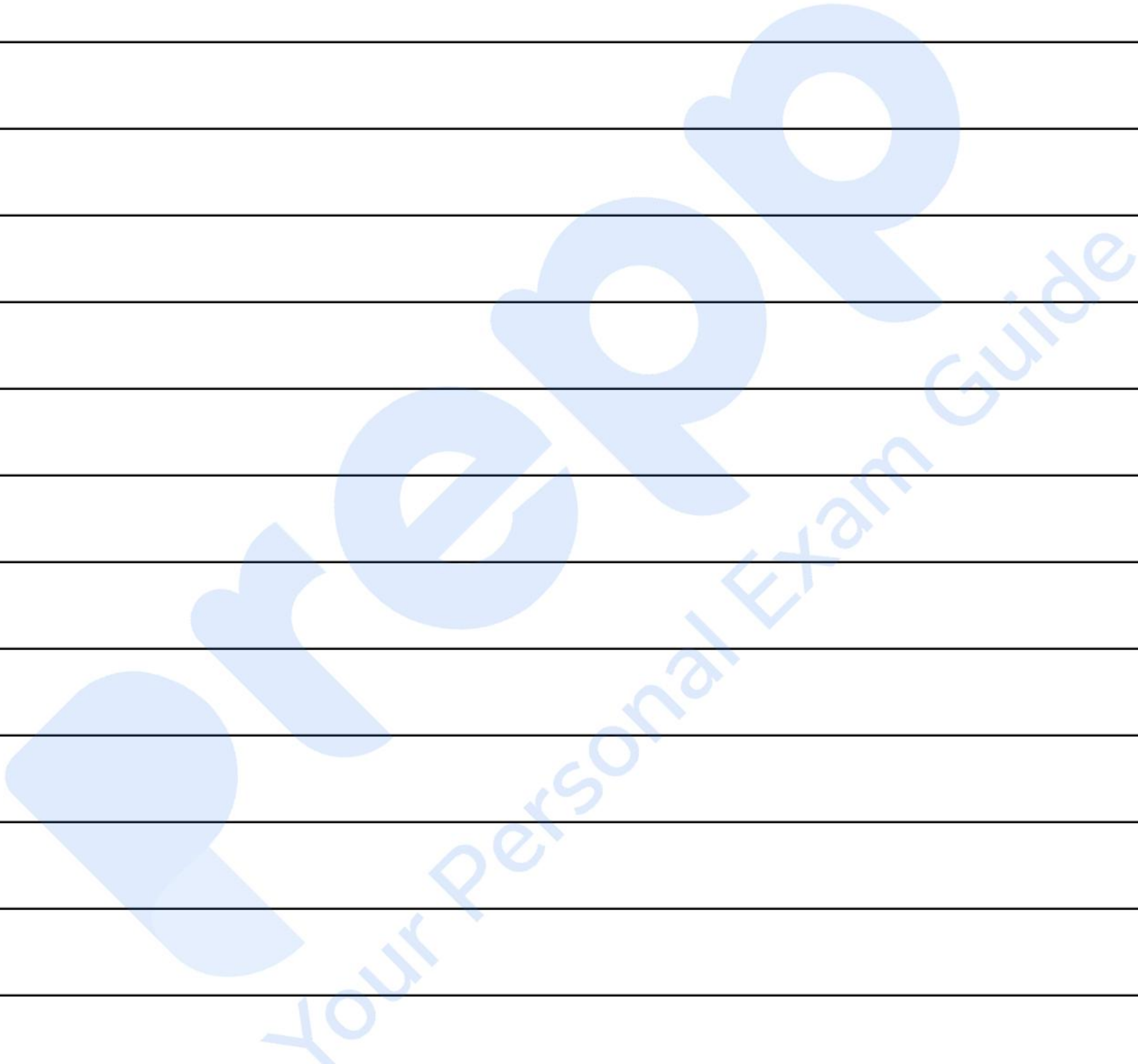
**Note :** This section contains **three (3)** questions of **fifteen (15)** marks each, to be answered in about **three hundred (300)** words. **(3 × 15 = 45 Marks)**

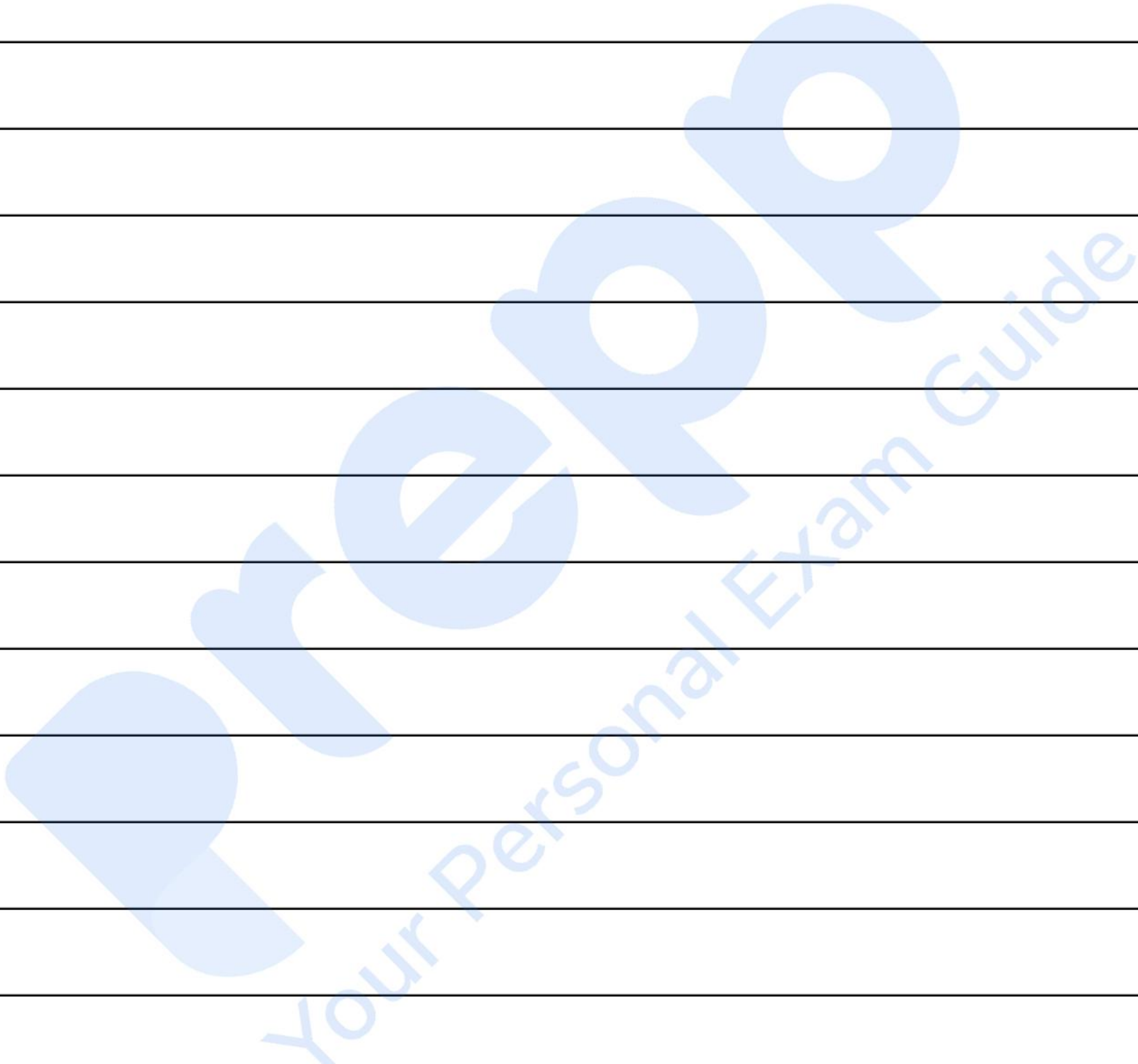
3. Discuss the criteria employed for dispersal of pollutants in marine ecosystems.
4. Discuss 'Nitrogen Cycle' and its significance.
5. Describe the operation of an effluent treatment plant.

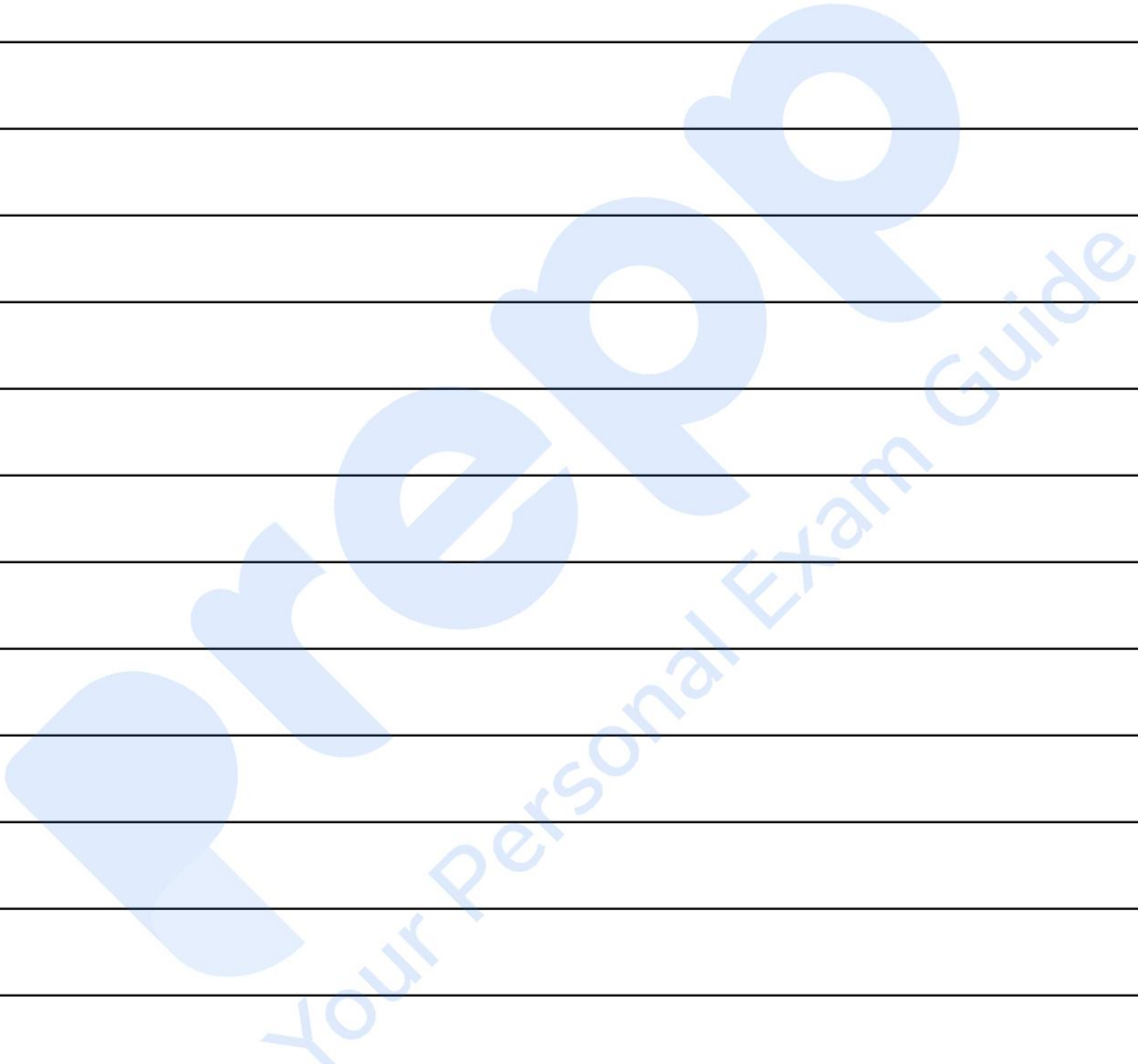


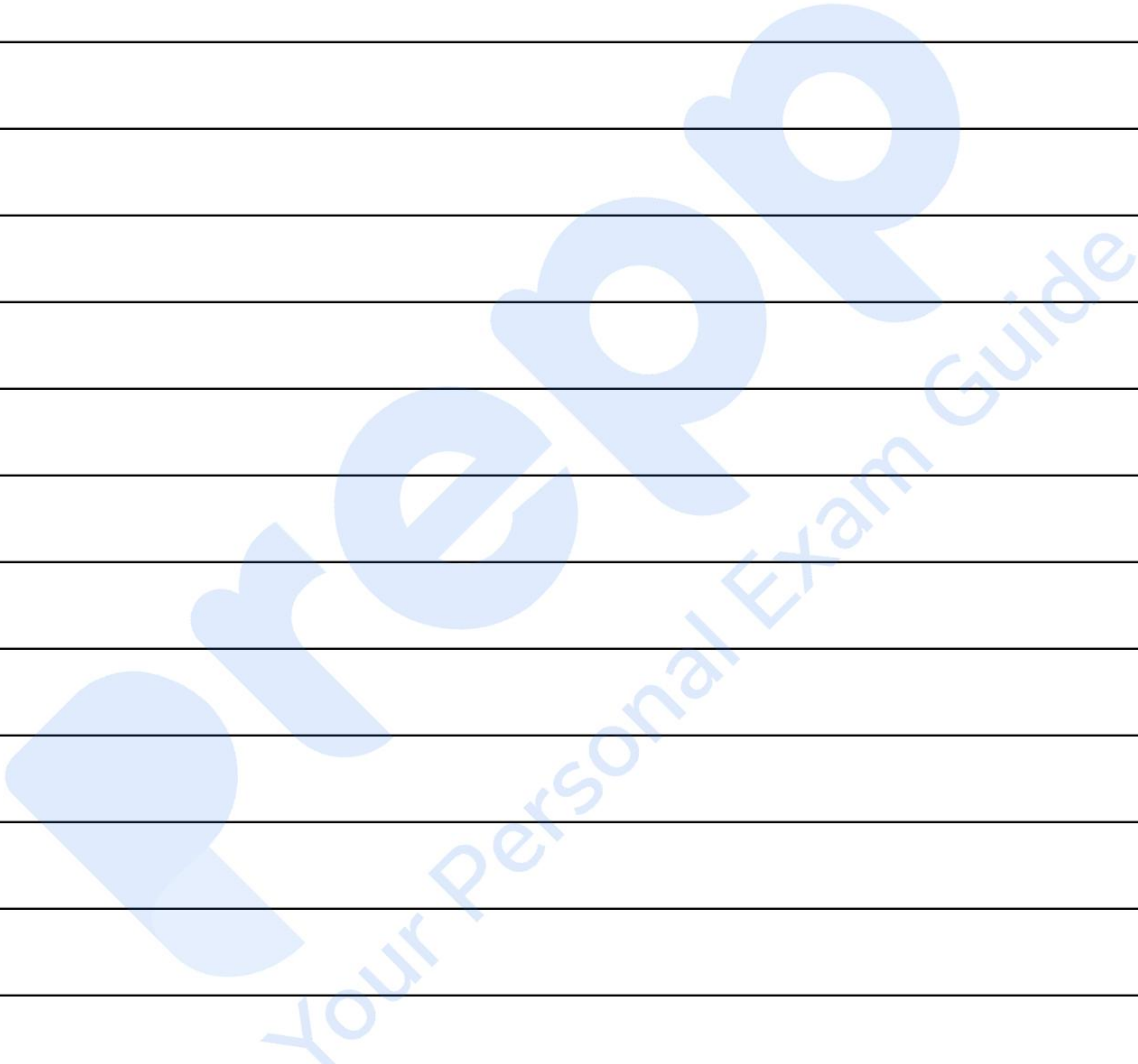


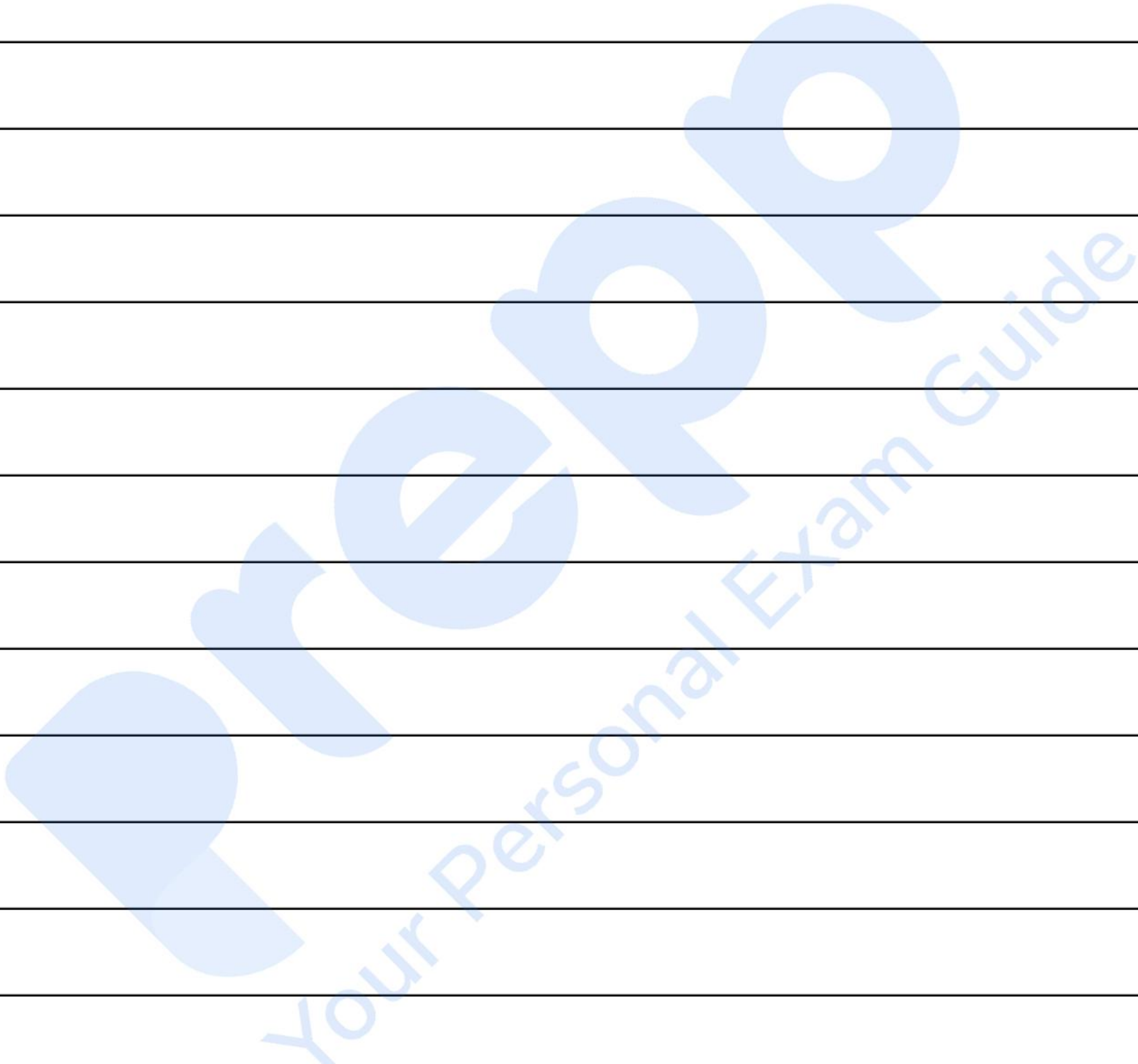












**SECTION – III**

**Note :** This section contains **nine (9)** questions of **ten (10)** marks each, to be answered in about **fifty (50)** words. **(9 × 10 = 90 Marks)**

6. Define aerodynamic diameter of an aerosol particle. How do the aerosol particles influence climate ?

7. Define phytoremediation. With suitable examples distinguish between phytoextraction and phytostabilization.

8. The molar extinction coefficient of X-iodine complex at 450 nm is 0.2. Determine the concentration of X in a solution of the iodine complex which has an absorbance of 0.38 in a 1 cm cuvette.

9. Describe the principle of Ocean Thermal Energy Conversion (OTEC).

10. Distinguish between El Nino and La Nina effects.

11. What is Red Data Book ? Explain its significance.

12. Explain the terms “precipitation” and “water table”.

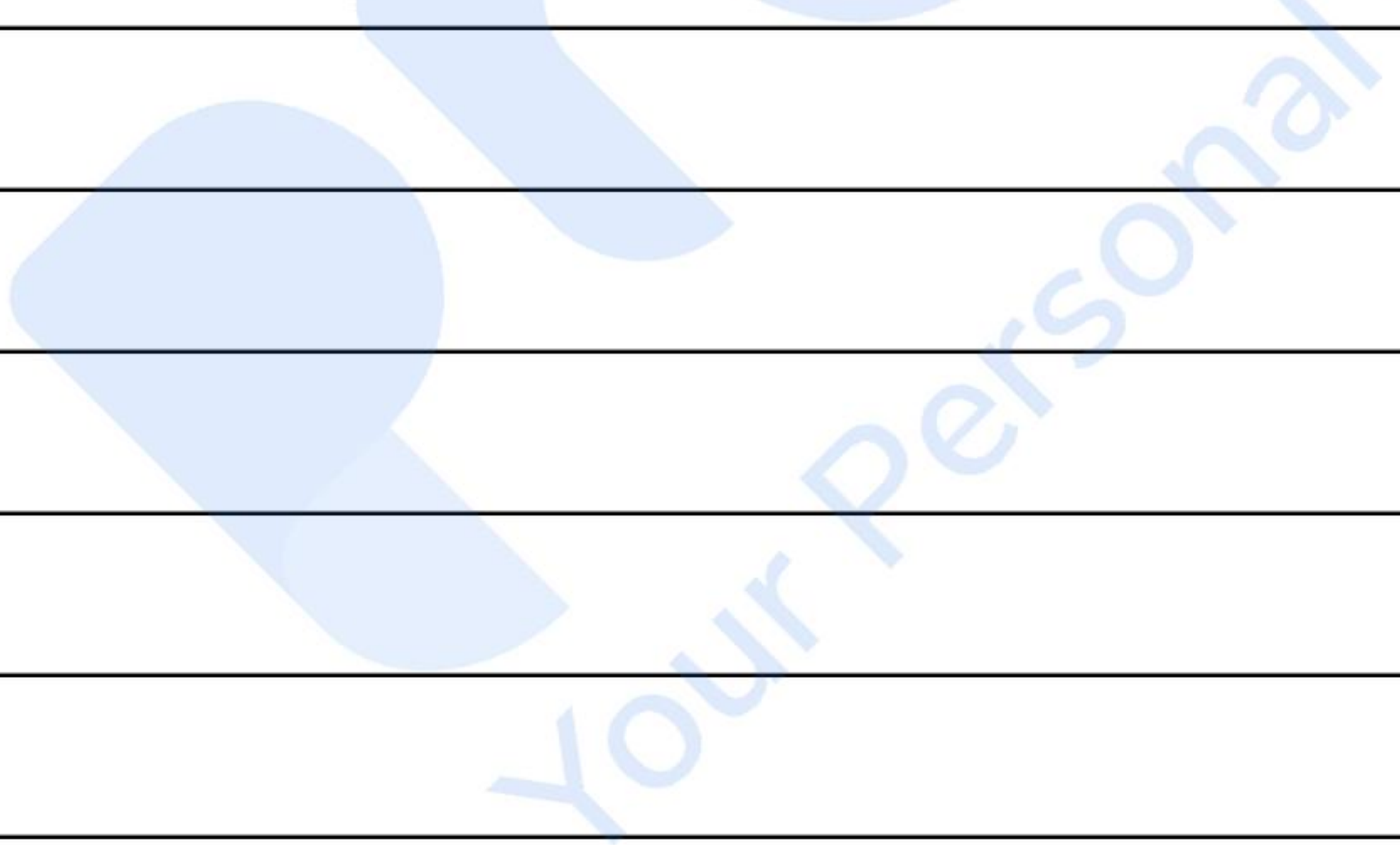
13. Differentiate between adiabatic lapse rate and environmental lapse rate.

14. Compare “Pyramid of numbers” for pond and tree ecosystems.

**Note :** This section contains **five (5)** questions of **five (5)** marks each based on the following passage. Each question should be answered in about **thirty (30)** words.  
**(5 × 5 = 25 Marks)**

Some years ago, the Arogya Health Service sent supplier of DDT to Karkala to control mosquitoes that were spreading malaria among the people. As the DDT was sprayed, the mosquitoes were quickly wiped out. But there were thousands of lizards in the village that ate these mosquitoes (which had absorbed the sprayed DDT) and

15. How did one small act of humans (spraying of DDT) disturb the balance of the ecosystem ?



16. How did absence of mosquitoes affected outburst of plague ?

17. How did roofing material get spoiled in Karkala ?

18. How did cats that ate the lizards die ?

19. What inference you draw from the above passage ?



**Space For Rough Work**



| FOR OFFICE USE ONLY |                |
|---------------------|----------------|
| Marks Obtained      |                |
| Question Number     | Marks Obtained |
| 1                   |                |
| 2                   |                |
| 3                   |                |
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| 17                  |                |
| 18                  |                |
| 19                  |                |

Total Marks Obtained (in words) .....  
(in figures) .....  
Signature & Name of the Coordinator .....  
(Evaluation) Date .....