

2016.

Set No. : 1

Question Booklet No.

M.Phil./16/TEST-B

989 Environment &amp; Sustainable Development

(To be filled up by the candidate by blue/black ball point pen)

Roll No.

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Roll No. (Write the digits in words) .....

Serial No. of OMR Answer Sheet .....

Day and Date .....

( Signature of Invigilator )

**INSTRUCTIONS TO CANDIDATES**

(Use only blue/black ball-point pen in the space above and on both sides of the Answer Sheet)

1. Within 30 minutes of the issue of the Question Booklet, Please ensure that you have got the correct booklet and it contains all the pages in correct sequence and no page/question is missing. In case of fault in Question Booklet, Bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall **except the Admit Card without its envelope.**
3. A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided.
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.
6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet no. on the Question Booklet.
7. Any change in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
8. This Booklet contains 40 multiple choice questions followed by 10 short answer questions. For each MCQ, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet. For answering any five short Answer Questions use five Blank pages attached at the end of this Question Booklet.
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
11. For rough work, use the inner back pages of the title cover and the blank page at the end of this Booklet.
12. Deposit both OMR Answer Sheet and Question Booklet at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages : 20

16

SEAL

**ROUGH WORK**

रफ़ कार्य

## Research Entrance Test-2016

No. of Questions : 50

प्रश्नों की संख्या : 50

Time : 2 Hours

Full Marks : 200

समय : 2 घण्टे

पूर्णाङ्क : 200

**Note: (1)** This Question Booklet contains **40** Multiple Choice Questions followed by **10** Short Answer Questions.

इस प्रश्न पुस्तिका में **40** वस्तुनिष्ठ व **10** लघु उत्तरीय प्रश्न हैं।

**(2)** Attempt as many MCQs as you can. Each MCQ carries **3 (Three)** marks. **1 (One)** mark will be deducted for each incorrect answer. **Zero** mark will be awarded for each unattempted question. If more than one alternative answers of MCQs seem to be approximate to the correct answer, choose the closest one.

अधिकाधिक वस्तुनिष्ठ प्रश्नों को हल करने का प्रयत्न करें। प्रत्येक वस्तुनिष्ठ प्रश्न **3 (तीन)** अंकों का है। प्रत्येक गलत उत्तर के लिए **1 (एक)** अंक काटा जायेगा। प्रत्येक अनुत्तरित प्रश्न का प्राप्तांक शून्य होगा। यदि वस्तुनिष्ठ प्रश्नों के एकाधिक वैकल्पिक उत्तर सही उत्तर के निकट प्रतीत हों, तो निकटतम सही उत्तर दें।

**(3)** Answer only **5** Short Answer Questions. Each question carries **16 (Sixteen)** marks and should be answered in **150-200** words. Blank **5 (Five)** pages attached with this booklet shall only be used for the purpose. Answer each question on separate page, after writing Question No.

केवल **5 (पाँच)** लघुउत्तरीय प्रश्नों के उत्तर दें। प्रत्येक प्रश्न **16 (सोलह)** अंकों का है तथा उनका उत्तर **150-200** शब्दों के बीच होना चाहिए। इसके लिए इस पुस्तिका में लगे हुए सादे **5 (पाँच)** पृष्ठों का ही उपयोग आवश्यक है। प्रत्येक प्रश्न का उत्तर एक नए पृष्ठ से, प्रश्न संख्या लिखकर शुरू करें।

01. The effect of gaseous pollutants depend mainly on their :  
(1) Solubility in water (1) (2) Hydrophobic in nature  
(3) Ability to settle (4) Longevity in air
02. Biomagnification is caused mainly by :  
(1) Neem oil (3) (2) Organophosphate  
(3) Organochlorides (4) All of the above
03. Of the following which is **not** the role of World Health Organization (WHO) ? (2)  
(1) To direct and coordinate authority on international health  
(2) To perform international trade and commodities  
(3) To promote mother and child health and welfare  
(4) To promote and conduct research in the field of health
04. Maximum water a soil can hold by capillary action is called :  
(1) Wilting point (2) Field capacity  
(3) Osmotic potential (4) Water potential
05. Percentage of forest area recommended by the national forest policy for plains :  
(1) 33% (2) 67% (1) (3) 30% (4) 10%
06. Chipko movement is a public agitation that took place in :  
(1) Mausbhal village area in Kashmir  
(2) Silent valley in Kerala (4)  
(3) Sacred grove in Meghalaya  
(4) Tehri Garhwal in Uttar Pradesh

07. A population having equal births and death number will show :

- (1) Acceleration phase of growth (2) Plateau phase  
(3) Exponential growth phase (4) Initial phase of growth

(2)

08. Contamination of water with sewage is indicated by cysts of :

- (1) *Escherichia coli* (2) *Pseudomonas*  
(3) *Leishmania* (4) *Trypanosoma*

(1)

09. Fish die in water polluted by sewage due to :

- (1) Pathogens (2) Reduction in  $O_2$   
(3) Clogging of gills by silt (4) Foul smell

(2)

10. Biological Oxygen Demand (BOD) in river water :

- (1) Increases when sewage gets mixed in it  
(2) Remain unchanged when algal bloom occurs  
(3) Has no relationship with  $O_2$  concentration of water  
(4) Gives measure of *Salmonella* in water

(1)

11. According to the 5<sup>th</sup> IPCC report global temperature has risen from 1880 to 2012 is :

- (1) 1.52 °C (2) 0.58 °C (3) 0.85 °C (4) 0.95 °C

12. Which of these is **not** a major contributor to greenhouse effect ?

- (1) CO (2)  $CO_2$  (3) CFC (4)  $CH_4$

13. Color of ozone molecule is :

- (1) White (2) Blue  
(3) Pale yellow (4) Green

14. What is the limit of arsenic in drinking water as per WHO standards ?  
(1) 1 ppb (2) 4 ppb  
(3) 10 ppb (4) 50 ppb
15. When the environmental lapse rate is less than adiabatic lapse rate, the condition is :  
(1) Unstable (2) Neutral  
(3) Stable (4) Super adiabatic
16. The enzyme involved in amino acid activation is :  
(1) ATP synthetase (2) Aminoacyl tRNA synthetase  
(3) Aminoacyl mRNA synthetase (4) Aminoacyl rRNA synthetase
17. hsp 60 and 70 are proteins involved in :  
(1) Initiation of translation (2) Elongation of translation  
(3) Termination of translation (4) Protein folding
18. Which of the following release factor recognizes stop codons UGA and UAA ?  
(1) Sigma factor (2) RF1  
(3) RF2 (4) RF3
19. Which species is **not** responsible for warming of Earth's atmosphere ?  
(1) Organic Carbon (2) Carbon Dioxide  
(3) Nitrous Oxide (4) Black Carbon
20. The unit of Gas Constant (R) is :  
(1)  $\text{J K}^{-1} \text{mol}^{-1}$  (2)  $\text{J mol}^{-1}$   
(3)  $\text{N K}^{-1} \text{mol}^{-1}$  (4)  $\text{mol}^{-1}$

- 21.** The biofertilizer is :
- |                    |                           |
|--------------------|---------------------------|
| (1) Organic manure | (2) Living microbial cell |
| (3) Vermicompost   | (4) Composting            |
- 22.** Which of the following organisms fix nitrogen in pond ecosystems ?
- |                   |                     |
|-------------------|---------------------|
| (1) Fungi         | (2) Chemoautotrophs |
| (3) Cyanobacteria | (4) Actinomycetes   |
- 23.** The endangered birds :
- |             |             |
|-------------|-------------|
| (1) Vulture | (2) Peacock |
| (3) Parrot  | (4) Crow    |
- 24.** How many bio-geographical regions are present in India ?
- |       |       |        |        |
|-------|-------|--------|--------|
| (1) 5 | (2) 7 | (3) 10 | (4) 15 |
|-------|-------|--------|--------|
- 25.** Fertility of soil is measured by its ability to :
- |                      |                            |
|----------------------|----------------------------|
| (1) Retain nutrients | (2) Hold organic materials |
| (3) Hold water       | (4) Support life           |
- 26.** The United State has declared year 2016 as :
- |                                  |                                   |
|----------------------------------|-----------------------------------|
| (1) International year of pulses | (2) International year of forests |
| (3) International year of soils  | (4) International year of water   |
- 27.** The total number of National Parks in India as on July 2016 is :
- |        |         |         |        |
|--------|---------|---------|--------|
| (1) 95 | (2) 103 | (3) 130 | (4) 86 |
|--------|---------|---------|--------|

**28.** CITES stand for :

- (1) Convention on International Trade in Endangered Species of Wild Fauna & Flora
- (2) Conservation on International Trade in Essential Species of Wild Fauna & Flora
- (3) Conference on International Trade in Economical Species of Wild Fauna & Flora
- (4) Conference on Indigenous Trade in Endangered Species of Wild Fauna & Flora

**29.** The Turtle Wildlife Sanctuary is located in which of the following state :

- (1) West Bengal
- (2) Madhya Pradesh
- (3) Uttar Pradesh
- (4) Gujarat

**30.** Which state is declared as fully organic state in India ?

- (1) Sikkim
- (2) Kerala
- (3) Himanchal Pradesh
- (4) Karnataka

**31.** Delhi, the capital city of India falls in which seismic zone ?

- (1) Zone I
- (2) Zone IV
- (3) Zone II
- (4) Zone V

**32.** What is the total number of Sustainable Development Goals as per UN 2015 ?

- (1) 12
- (2) 15
- (3) 17
- (4) 20



33. Which of the following element has the maximum chemical composition in Earth's crust ?
- |             |               |
|-------------|---------------|
| (1) Iron    | (2) Oxygen    |
| (3) Silicon | (4) Aluminium |
34. The first transgenic plant was :
- |             |            |
|-------------|------------|
| (1) Tobacco | (2) Flax   |
| (3) Pea     | (4) Cotton |
35. In Minamata Bay Japan the animals which remained free from Minamata disease are ?
- |           |             |
|-----------|-------------|
| (1) Doges | (2) Cats    |
| (3) Pigs  | (4) Rabbits |
36. Which one of the following shows one-way passage in ecosystem ?
- |                 |               |
|-----------------|---------------|
| (1) Free energy | (2) Carbon    |
| (3) Nitrogen    | (4) Potassium |
37. Which among the following is key faunal species that is being conserved and monitored in Dachigam National Park ?
- |                            |                            |
|----------------------------|----------------------------|
| (1) Mush Deer              | (2) Golden Oriole          |
| (3) Yellow-throated Marten | (4) Hangul or Kashmir Stag |
38. To qualify as a Biodiversity Hotspots a region must meet the following criteria :
- (1) At least 1500 vascular plants as endemic and 30% or less of its original natural vegetation
  - (2) At least 750 vascular plants as endemic and 10% or less of its original natural vegetation
  - (3) At least 1150 vascular plants as endemic and 15% or less of its original natural vegetation
  - (4) At least 950 vascular plants as endemic and 5% or less of its original natural vegetation

- 39.** Ecotourism falls under which category of ecosystem services ?
- |                  |                |
|------------------|----------------|
| (1) Provisioning | (2) Cultural   |
| (3) Regulating   | (4) Supporting |
- 40.** As per global footprint network 2016, which of the following country has the highest per capita ecological footprint ?
- |            |            |
|------------|------------|
| (1) India  | (2) Brazil |
| (3) Russia | (4) USA    |

***Short Answer Questions***

**Note:** Attempt any **five** questions. Write answer in **150-200** words. Each question carries **16** marks. Answer each question on separate page, after writing Question Number.

- 01.** Discuss the extent of population vulnerability to climate change.
- 02.** Analyze the role of redefined sustainable development goals of UN.
- 03.** Discuss the concept of ecosystem services for good quality of life and human well being.
- 04.** Critically examine the role of genetic engineering in sustainable development.
- 05.** Discuss latest initiatives for conserving major rivers of India.
- 06.** What are the ambit and applicability of 'Paris Agreement' ?
- 07.** Discuss sustainable strategies for feeding a rapidly growing human population.
- 08.** Critically discuss greener sources of energy for supplementing the energy demands of India.

- 09.** Propose few viable management strategies for curbing air quality deterioration in Indian cities.
- 10.** Discuss role of indigenous and local knowledge for biodiversity management.

**Question No.**

**Page for Short Answer**

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**Question No.**

**Page for Short Answer**

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**ROUGH WORK**

**ROUGH WORK**

## अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर

केवल नीली-काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 30 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्नपुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्नपुस्तिका पर अनुक्रमांक और ओ० एम० आर० पत्र संख्या की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिए आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिए केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो संबंधित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिए प्रश्न-पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा उत्तर-पुस्तिका के अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ एम आर उत्तर-पत्र परीक्षा भवन में जमा कर दें।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की, भागी होगा/होगी।