



Previous Year Question Paper  
of

**SET MH (MAHARASHTRA)**  
**ENVIRONMENTAL SCIENCES**  
**Question Paper – II**

**State Eligibility Test**

**2013, December**

*(Original Question Paper with Answer Key)*

State Eligibility Test



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Test Booklet No.

प्रश्नपत्रिका क्र.

**F****Paper-II****ENVIRONMENTAL SCIENCE****Signature and Name of Invigilator**

Seat No.

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(In figures as in Admit Card)

1. (Signature) .....

(Name) .....

Seat No. ....

(In words)

2. (Signature) .....

(Name) .....

OMR Sheet No.

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(To be filled by the Candidate)

**DEC - 31213****Time Allowed : 1¼ Hours]****[Maximum Marks : 100****Number of Pages in this Booklet : 12****Number of Questions in this Booklet : 50**

- Instructions for the Candidates**
- Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
  - This paper consists of **50** objective type questions. Each question will carry *two* marks. *All* questions of Paper-II will be compulsory, covering entire syllabus (including all electives, without options).
  - At the commencement of examination, the question booklet will be given to the student. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as follows :
    - 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 or 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 missing pages/questions or questions repeated or not in serial order or any other discrepancy should not be accepted and correct booklet should be obtained from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given. The same may please be noted.**
    - After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
  - Each question has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.  
**Example :** where (C) is the correct response.  

(A)	(B)	(C)	(D)
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  - Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only**. If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
  - Read instructions given inside carefully.
  - Rough Work is to be done at the end of this booklet.
  - If you write your Name, Seat Number, Phone Number or put any mark on any part of the OMR 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 original OMR Sheet to the invigilator at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. You are, however, allowed to carry the Test Booklet and duplicate copy of OMR Sheet on conclusion of examination.
  - Use only Blue/Black Ball point pen.**
  - Use of any calculator or log table, etc., is prohibited.**
  - There is no negative marking for incorrect answers.**

- विद्यार्थ्यांसाठी महत्त्वाच्या सूचना**
- परिक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
  - सदर प्रश्नपत्रिकेत **50** बहुपर्याय प्रश्न आहेत. प्रत्येक प्रश्नास **दोन** गुण आहेत. या प्रश्नपत्रिकेतील **सर्व** प्रश्न सोडविणे अनिवार्य आहे. सदरचे प्रश्न हे या विषयाच्या संपूर्ण अभ्यासक्रमावर आधारित आहेत.
  - परीक्षा सुरू झाल्यावर विद्यार्थ्यांला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनिटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी आवश्यक तपासून पहाव्यात.
    - प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्विकारू नये.
    - पहिल्या पृष्ठावर नमूद केल्याप्रमाणे प्रश्नपत्रिकेची एकूण पृष्ठे तसेच प्रश्नपत्रिकेतील एकूण प्रश्नांची संख्या पडताळून पहावी. पृष्ठे कमी असलेली/कमी प्रश्न असलेली/प्रश्नांचा चुकीचा क्रम असलेली किंवा इतर त्रुटी असलेली सदोष प्रश्नपत्रिका सुरुवातीच्या 5 मिनिटातच पर्यवेक्षकाला परत देऊन दुसरी प्रश्नपत्रिका मागवून घ्यावी. त्यानंतर प्रश्नपत्रिका बदलून मिळणार नाही तसेच वेळही वाढवून मिळणार नाही याची कृपया विद्यार्थ्यांनी नोंद घ्यावी.
    - वरीलप्रमाणे सर्व पडताळून पहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर लिहावा.
  - प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळ/निळ करवा.  
**उदा. :** जर (C) हे योग्य उत्तर असेल तर.  

(A)	(B)	(C)	(D)
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  - या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे **ओ.एम.आर. उत्तरपत्रिकेतच दर्शावावीत**. इतर ठिकाणी लिहीलेली उत्तरे तपासली जाणार नाहीत.
  - आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
  - प्रश्नपत्रिकेच्या शेवटी जोडलेल्या कोऱ्या पानावरच कच्चे काम करावे.
  - जर आपण ओ.एम.आर. वर नमूद केलेल्या ठिकाणा व्यतिरीक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खूप केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमागाचा अवलंब केल्यास विद्यार्थ्यांला परीक्षेस अपात्र ठरविण्यात येईल.
  - परीक्षा संपल्यानंतर विद्यार्थ्यांनी मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापी, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
  - फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.**
  - कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.**
  - चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.**

DEC-31213/II

**Environmental Science**  
**Paper II**

**Time Allowed : 75 Minutes]**

**[Maximum Marks : 100**

**Note :** This Paper contains **Fifty (50)** multiple choice questions, each question carries **Two (2)** marks. Attempt *All* questions.

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|---|--|
| <p>1. According to second law of thermodynamics .....</p> <p>(A) Every energy transfer is 100% efficient</p> <p>(B) No energy transfer is 100% efficient</p> <p>(C) Energy transfer enriches next trophic level in energy content</p> <p>(D) Energy transfer could increase more than 100% energy in an ecosystem</p> <p>2. The atmosphere takes up moisture from water bodies (lakes, rivers and oceans) through .....</p> <p>(A) Condensation</p> <p>(B) Evaporation</p> <p>(C) Precipitation</p> <p>(D) Infiltration</p> | <p>3. Normal pressure of the atmosphere at mean sea level is .....</p> <p>(A) 1000 hpa</p> <p>(B) 1013.2 hpa</p> <p>(C) 1020 hpa</p> <p>(D) 1000.2 hpa</p> <p>4. Maximum concentration of ozone in the atmosphere occurs at/in :</p> <p>(A) Near ground</p> <p>(B) Mesosphere</p> <p>(C) Upper stratosphere</p> <p>(D) Lower stratosphere</p> <p>5. Wind rose diagram of a station gives .....</p> <p>(A) Frequency of extreme wind speeds</p> <p>(B) Frequency of wind speeds of different ranges</p> <p>(C) Frequency of wind from different directions in different speed ranges</p> <p>(D) Frequency of wind from different directions</p> |
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| <p>6. Which of the following radionuclides is present in human body ?</p> <p>(A) I-131</p> <p>(B) Zn-65</p> <p>(C) Co-60</p> <p>(D) C-14</p> <p>7. 100 mg of NaCl dissolved in 100 mL water represents how many ppm ?</p> <p>(A) 1000</p> <p>(B) 1.0</p> <p>(C) 10</p> <p>(D) 100</p> <p>8. 10% transmittance of a solution on colorimeter indicates an absorbance of .....</p> <p>(A) 2</p> <p>(B) 1</p> <p>(C) 0.1</p> <p>(D) 0.2</p> | <p>9. How much is the permissible limit of arsenic in drinking water ?</p> <p>(A) 10 mg/lit</p> <p>(B) 1 mg/lit</p> <p>(C) 10 µg/lit</p> <p>(D) 1 µg/lit</p> <p>10. Mineral matter in soil is approximately .....</p> <p>(A) 10%</p> <p>(B) 25%</p> <p>(C) 40%</p> <p>(D) 30%</p> <p>11. The interlocking network of transfer of food from one trophic to another can be explained using :</p> <p>(A) Food-chain</p> <p>(B) Food-web</p> <p>(C) Detritus cycle</p> <p>(D) Exchange pool</p> |
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12. Western Ghats mountain range is called as ecological hot spot because :
- (A) Number of plants is high
  - (B) Number of animals is high
  - (C) Number of plants and animals is high
  - (D) Number of species of biota is high
13. There are more/varied and specialized niche found in :
- (A) Algae
  - (B) Pteridophytes
  - (C) Plants
  - (D) Animals
14. A series of orderly changes that occurs in nature over the time and space is known as :
- (A) Ecological succession
  - (B) Ecological degradation
  - (C) Decline in number of species
  - (D) Increase parasites
15. Liquid based formulation of biofertilizer are designed for :
- (A) Soil application through drip irrigation
  - (B) Aerial application
  - (C) Seed application
  - (D) Root application
16. 'Avalanche' are a result of which of the following ?
- (A) Earthquakes beneath the ocean floor
  - (B) Pressure differentials on the equator
  - (C) Pollution of mountainous regions
  - (D) Unstability of ice-capped hilly terrains (glaciers)
17. 'Silica oozes' are located at which of the following sites ?
- (A) Meandering river beds
  - (B) Deep sea floors
  - (C) Lake deposits
  - (D) River banks

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18. The excessive rains/droughts, caused due to El Nino, are prominently observed along ..... .
- (A) coasts of Peru and Chile
  - (B) eastern coastal belt of South America
  - (C) eastern coastal belt of India
  - (D) eastern coastal regions of Japan
19. Which of the following is associated with the phosphorous cycle of the earth ?
- (A) Trade winds
  - (B) Guano
  - (C) Photosynthesis
  - (D) Evaporation of water
20. The hazardous surface effects of an earthquake are due to ..... .
- (A) Primary waves
  - (B) Secondary waves
  - (C) 'L' waves
  - (D) shear waves
21. Maximum permissible dose of radiation for worker is :
- (A) 5 rem/year
  - (B) 2 rontgen/year
  - (C) 1 rontgen/year
  - (D) 2 rem/year
22. How much nuclear energy is released per fission of U-235 ?
- (A) 1000 keV
  - (B) 100 keV
  - (C) 200 meV
  - (D) 500 MeV
23. Nearly ..... % of solar energy is in the infrared region of the solar spectrum.
- (A) 46
  - (B) 30
  - (C) 78
  - (D) 25

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24. Arrange them in decreasing order of their pollution potential :
- (A) Natural gas, coal, petroleum
  - (B) Coal, petroleum, natural gas
  - (C) Petroleum, coal, natural gas
  - (D) Natural gas, petroleum, coal
25. There are different stages in the biomethanation of waste. Which of the following involves methane generation ?
- (A) Aceticlastic
  - (B) Acetogenic
  - (C) Acidogenesis
  - (D) Hydrolysis
26. The water sample for D.O. analysis is fixed at the site itself because :
- (A) D.O. increases in transit
  - (B) The D.O. depletes due to microbial activity
  - (C) Suspended solids increase in transit
  - (D) The dissolved solids increase during transport
27. Acidification of soil has been reported from various parts of the country which is caused due to :
- (A) use of organic fertilizers
  - (B) excess and long term use of inorganic fertilizers
  - (C) practice of crop rotation
  - (D) controlled irrigation
28. O<sub>3</sub> pollution is indicated by plant leaves in the form of :
- (A) Intercoastal bronzing
  - (B) Minute chlorotic dots
  - (C) Tip and margin browning
  - (D) Watery film on epidermis
29. Mangroves are ecologically important because :
- (A) They are evergreen in nature
  - (B) They function as nursery for many marine organisms
  - (C) They harbour mosquitoes
  - (D) They provide fodder to grazing cattle



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30. Noise pollution during festivals is considered to be high, when it exceeds :
- (A) 30 dB
  - (B) 70 dB
  - (C) 110 dB
  - (D) 150 dB
31. Driving force behind the formulation of the Environmental (Protection) Act, 1986 adopted by Govt. of India was :
- (A) UN Conference on Human Environmental, Stockholm 1972
  - (B) UN Conference on global climate change
  - (C) Doha Declaration
  - (D) UN Conference Environment and Development, Rio
32. Which impacts of developmental activities are *not* susceptible to mitigation measures ?
- (A) Reversible
  - (B) Adverse
  - (C) Positive
  - (D) Irreversible
33. The impact identification in EIA brings together .....
- (A) Project characteristics and baseline information
  - (B) Project characteristics and mitigation measures
  - (C) Baseline information and impacts
  - (D) Impacts and mitigation measures
34. Strategic environmental impact assessment is applicable for .....
- (A) Industrial projects
  - (B) Mining projects
  - (C) Infrastructural projects
  - (D) Policy, plan or program
35. Environmental inventory enlists ..... as it exists in nature.
- (A) Total environmental assets
  - (B) Affected environmental assets
  - (C) Partial environmental assets
  - (D) Flora and Fauna



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36. Ramsar UN Convention is to protect and conserve .....
- (A) Wetlands
  - (B) Grasslands
  - (C) Tropical forests
  - (D) Wildlife
37. The Act, which gave the Government and Forest Department the power to create Reserve Forests in India, is .....
- (A) Indian Forest Act of 1927
  - (B) Forest Conservation Act of 1980
  - (C) Wildlife Protection Act of 2002
  - (D) The Environment Act of 1986
38. Which of the following categories of Bio-medical waste is considered as 'Hazardous waste category No. 1' ?
- (A) Microbial waste
  - (B) Biotechnological waste
  - (C) Human anatomical waste
  - (D) Discarded medicines
39. An Act related to biodiversity is known as :
- (A) The Biological Diversity Act 2002
  - (B) The Biodiversity Act 2002
  - (C) The Plant and Animal Diversity Act 2002
  - (D) The Forest Biodiversity Act 2002
40. .... does *not* come under the applicability of Environment (Protection) Act, 1986, which is related to hazard waste management and handling.
- (A) Bio-medical waste
  - (B) Radio-active waste
  - (C) River pollution due to agricultural practices
  - (D) Domestic waste

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41. Arithmetic mean, geometric mean and harmonic mean are equal if and only if :
- (A) all observations are positive
  - (B) all observations are distinct
  - (C) all observations are in ascending order
  - (D) all observations are equal
42. A multiple linear regression model is written as follows :
- (A)  $Y = \alpha + \beta_1 X_1$
  - (B)
  - (C) +
  - (D)
43. For the binomial distribution :
- (A) Mean < variance
  - (B) Mean = variance
  - (C) Mean > variance
  - (D) Mean and variance have no definite relationship
44. Probability of an event must be :
- (A) positive
  - (B) between 0 and 1
  - (C) small
  - (D) less than 1
45. The purpose behind studying models of population growth is to :
- (A) predict the population size
  - (B) identify dominating species
  - (C) identify endangered species
  - (D) compare similarities and differences between environmental conditions

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46. The problem of acid rain is caused due to presence of higher concentration of ..... in air over industrial area.
- (A) CO
  - (B) CO<sub>2</sub>
  - (C) O<sub>3</sub>
  - (D) SO<sub>2</sub>/SO<sub>3</sub>
47. Goitre is caused due to :
- (A) Excess of iodine
  - (B) Deficiency of iodine
  - (C) Excess of chlorine
  - (D) Deficiency of chlorine
48. Agenda 21 is a blue-print for sustainable development and was issued at the end of UN Conference on Environment and Development held at :
- (A) Stockholm
  - (B) Rio de Janeiro
  - (C) Johannesburg
  - (D) Kyoto
49. Which of the following refers to efforts for controlling ozone depletion ?
- (A) Kyoto protocol
  - (B) Ramsan convention
  - (C) Montreal protocol
  - (D) CITES convention
50. Coupling of cyanobacteria cultivation in the nutrient rich effluents with decomposition of organic matter can minimise release of green house gases. It is due to all of the following, *except* :
- (A) Autotrophic nature
  - (B) Ability to fix nitrogen
  - (C) Ability to deplete nutrients
  - (D) Heterotrophic nature

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