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OCT-31226
Paper-II
ENVIRONMENTAL SCIENCES

Series **A**

A

Question Booklet Serial No.
प्रश्नपत्रिका अनुक्रमांक

Signature and Name of Invigilator

1. (Signature) .....
   (Name) .....
2. (Signature) .....
   (Name) .....

Seat No. | | | | | | | | |
(In figures as in Admit Card)

Seat No. .....
(In words)

OMR Sheet No. | | | | | | |
(To be filled by the Candidate)

Time Allowed : 2 Hours] **[Maximum Marks : 200**

Number of Pages in this Booklet : **16**

Number of Questions in this Booklet : **100**

Instructions for the Candidates

1. Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
2. This paper consists of **100** objective type questions. **Each** question will carry **two** marks. **All** questions of Paper II will be **compulsory**.
3. 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 :
   (i) 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.**
   (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 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.
   (iii) After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
4. 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 (B) is the correct response.
   (A) ● (C) (D)
   Following wrong methods should not be used as they are not recognised by scanning machine in digitized assessment. Candidate using such method will be responsible for their loss.

WRONG METHODS
(A) ✓ (C) (D) (A) ✗ (C) (D) (A) ◒ (C) (D) (A) (B) (C) (D)

5. 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.
6. Read instructions given inside carefully.
7. Rough Work is to be done at the end of this booklet.
8. 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.
9. 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.
10. **Use only Blue/Black Ball point pen.**
11. Use of any calculator or log table, etc., is prohibited.
12. There is no negative marking for incorrect answers.

विद्यार्थ्यांसाठी महत्त्वाच्या सूचना

1. परीक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या OMR उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
2. सदर प्रश्नपत्रिकेत **100** बहुविकल्प प्रश्न आहेत. प्रत्येक प्रश्नास **दोन** गुण आहेत. या प्रश्नपत्रिकेतील **सर्व** प्रश्न सोडविणे अनिवार्य आहे.
3. परीक्षा सुरू झाल्यावर विद्यार्थ्याला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनिटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून पहाव्यात :
   (i) प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. **स्टीकर सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्वीकारू नये.**
   (ii) 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 नोंद घ्यावी.
   (iii) वरीलप्रमाणे सर्व पडताळून पाहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा क्रमांक लिहावा.
4. प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा/निळा करावा.
   उदा. : जर (B) हे योग्य उत्तर असेल तर.
   (A) ● (C) (D)
   खालील चुकीच्या पद्धती वापरू नये, कारण डिजिटाइज्ड (Digitized) मूल्यांकनात स्कॅनिंग मशीन त्यांना ओळखत नाही. त्या पद्धती वापरून नुकसान झाल्यास त्यास विद्यार्थीच जबाबदार असतील.

चुकीची पद्धती
(A) ✓ (C) (D) (A) ✗ (C) (D) (A) ◒ (C) (D) (A) (B) (C) (D)

5. या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे **ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत**. इतर ठिकाणी लिहिलेली उत्तरे तपासली जाणार नाहीत.
6. आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
7. प्रश्नपत्रिकेच्या शेवटी जोडलेल्या कोऱ्या पानावरच कच्चे काम करावे.
8. जर आपण ओ.एम.आर. उत्तरपत्रिकेवर नमूद केलेल्या ठिकाणाव्यतिरिक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खूण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमार्गांचा अवलंब केल्यास विद्यार्थ्याला परीक्षेस अपात्र ठरविण्यात येईल.
9. परीक्षा संपल्यानंतर विद्यार्थ्याने मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापि, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
10. **फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.**
11. कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.
12. चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.

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OCT-31226–A

Environmental Sciences
Paper II

Time Allowed : 120 Minutes] **[Maximum Marks : 200**

Note : This Paper contains **Hundred (100)** multiple choice questions. Each question carrying **Two (2)** marks. Attempt *All* questions.

1. Decreasing order of solubility of CO_2, O_2, N_2 and He in water is
   (A) $CO_2 > O_2 > N_2 > He$
   (B) $O_2 > CO_2 > N_2 > He$
   (C) $O_2 > CO_2 > He > N_2$
   (D) $CO_2 > N_2 > O_2 > He$

2. The basic principle of any chromatographic technique is
   (A) Scattering
   (B) Reflection
   (C) Adsorption-desorption
   (D) Potential difference

3. Dissolution of 2g NaOH in 250 ml of water give a solution of
   (A) 0.8 M
   (B) 0.4 M
   (C) 0.2 M
   (D) 0.1 M

4. Primary cleansing agent in the lower troposphere is
   (A) ClO radical
   (B) NO_3 radical
   (C) OH radical
   (D) Cl radical

5. C : N ratio in humus is present approximately as
   (A) 1 : 40
   (B) 40 : 1
   (C) 1 : 10
   (D) 10 : 1

6. Which air pollutant is *not* covered by the National Ambient Air Quality Standards ?
   (A) Sulfur dioxide (SO_2)
   (B) Nitrogen dioxide (NO_2)
   (C) Ozone (O_3)
   (D) Carbon dioxide (CO_2)

7. In 1984, which of the following chemical amount in tons pair is correct option for Bhopal disaster in India ?
   (A) Vinyl benzene – 40
   (B) Vinyl benzene – 70
   (C) Methyl isocyanate – 40
   (D) Methyl isocyanate – 70

8. What does the Gaussian Plum model primarily predict ?
   (A) Temperature variation
   (B) Concentration distribution of pollutants
   (C) Cloud cover
   (D) Rain fall

9. Which type of lakes have a water with high biological productivity due to rich nutrient constitution, especially nitrogen and phosphorous ?
   (A) Oligotrophic
   (B) Mesotrophic
   (C) Eutrophic
   (D) Hypereutrophic

10. A stream of waste water having DO of 5 ppm discharges water at the rate of 8,000 L/s into another stream with a flow rate of 12,000 L/s and DO of 2 ppm. Assuming instantaneous and complete mixing, what is the resultant DO just downstream from the point of discharge ?
    (A) 3.2 ppm
    (B) 3.5 ppm
    (C) 7.0 ppm
    (D) 3.0 ppm

11. Natural waters with electrical conductance between 250 to 750 micromhos/cm can be best classified as
    (A) Good
    (B) Excellent
    (C) Doubtful
    (D) Unsuitable

12. pH is an acronym for
    (A) Positive hydrosphere
    (B) Positive helium ion concentration
    (C) Positive hydrogen ion concentration
    (D) Positive halogen ion concentration

13. As per Bureau of Indian Standards (BIS) for Drinking water, the desirable limit for Total Dissolved Solids (TDS) is _____ mg/L.
    (A) 300
    (B) 75
    (C) 750
    (D) 0.01

14. Solifluction, a type of mass movement is a type of
    (A) Subsidence
    (B) Slow flow
    (C) Rapid flow
    (D) Slide

15. In the northern hemisphere, the phenomena of seawater flow 90° to the right of wind is called
    (A) Surface current
    (B) Ocean gyres
    (C) Ekman spiral
    (D) El Nino

16. In testing of statistical Hypothesis the probability of type two error is
    (A) Probability of rejecting null hypothesis H_0 when H_0 is true
    (B) Probability of accepting null hypothesis H_0 when H_0 is false
    (C) Probability of rejecting null hypothesis H_0 when H_0 is false
    (D) Probability of accepting null hypothesis H_0 when H_0 is true

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17. For the random variable X with mean value 0 and variance is 6^2. Which of the following statement is correct ?

(A) Probability $P(X > x) > \frac{6^2}{(6^2 + x^2)}$, if $x > 0$

(B) Probability $P(X > x) \leq \frac{6^2}{(6^2 + x^2)}$, if $x > 0$

(C) Probability $P(X > x) > \frac{x^2}{(6^2 + x^2)}$, if $x > 0$

(D) Probability $P(X > x) \leq \frac{x^2}{(6^2 + x^2)}$, if $x > 0$

18. In purposive sampling scheme, which of the following statements are correct ?

i. The selection of the units entirely depends on the choice of the investigators.
ii. The selection of the units entirely does not depends on the choice of the investigators.
iii. In this sampling procedure there is no involvement of probability.
iv. This type of sampling is not possible to adopt any random procedure for selection of sampling units.

(A) i, ii and iii

(B) i, ii and iv

(C) i, iii and iv

(D) ii, iii and iv

19. For any positive real number t, defined by a function $P(X = x) = e^{-t} (1 - e^{-t})^{x-1}$ represent a probability function of a random variable X assuming the values 1, 2, 3,....., what is the variance of X of this distribution ?

(A) $e^{-t} (e^{-t} - 1)$

(B) $e^{t} (1 - e^{-t})$

(C) $e^{t} (e^{-t} - 1)$

(D) $e^{-t} (e^{t} - 1)$

20. The sum of two non-negative quantities is equal to 2n, where n is natural number. What is the probability that their product is *not* less than $\frac{3}{4}$ times their greatest product ?

(A) $\frac{1}{2}$

(B) $\frac{1}{3}$

(C) $\frac{1}{4}$

(D) $\frac{1}{6}$

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21. According to the Planning Commission of India, how many Agro-climatic zones are present in India ?
(A) 20
(B) 127
(C) 15
(D) 104

22. What is the lapse rate when the environmental lapse rate equals the dry adiabatic lapse rate ?
(A) Adiabatic lapse rate
(B) Saturated adiabatic lapse rate
(C) Moist adiabatic lapse rate
(D) Superadiabatic lapse rate

23. Convective heat transfer involves the movement of heat through
(A) Solid materials
(B) Fluid motion
(C) Electromagnetic waves
(D) Thermal radiation

24. What causes the phenomenon known as the Northern Lights (Aurora Borealis) ?
(A) Solar winds interacting with Earth's magnetic field
(B) Reflection of sunlight by ice crystals
(C) Volcanic activity
(D) Greenhouse gas emissions

25. The implementation of Bharat Stage norm is regulated by which government agency in India ?
(A) Ministry of Earth Sciences (MoES)
(B) Ministry of Road Transport and Highway
(C) Central Pollution Control Board (CPCB)
(D) National Green Tribunal (NGT)

26. What was the chemical gas leaked from Union Carbide Plant ?
(A) MIC
(B) MICA
(C) MI
(D) MIS

27. Project Elephant is a Central Government sponsored scheme launched in
(A) February 1990
(B) February 1992
(C) March 1992
(D) August 1992

28. Montreal protocol is related to
(A) GHG control
(B) ODS control
(C) Acid rain control
(D) LRT control

29. Which among the following practices of rainwater harvesting originated in Rajasthan ?
(A) GWS
(B) KWS
(C) Bavdis
(D) Naulas

30. The Vienna Convention for the protection of the Ozone layer was adopted in the year
(A) 1972
(B) 1985
(C) 1992
(D) 2000

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31. Solar flux first outside of the Earth's atmosphere is approximately
(A) 780 Wm^{-2}
(B) 1373 Wm^{-2}
(C) 720 Wm^{-2}
(D) 245 Wm^{-2}

32. Which fuel has the highest density ?
(A) Wood
(B) Coal
(C) Crop residue
(D) Dung cave

33. Which one of the following energy sources is non-renewable ?
(A) Wind
(B) Solar
(C) Coal
(D) Hydroelectric

34. Which is the best fuel in terms of its calorific value ?
(A) Kerosene
(B) Diesel
(C) CNG
(D) Hydrogen

35. Regarding hydrogen production, which one of the combinations is *not* correct ?
(A) Pink hydrogen – Nuclear energy
(B) Brown hydrogen – Brown coal gasification
(C) Turquoise hydrogen – Methane pyrolysis
(D) Grey hydrogen – Solar energy

36. The National Water Policy (NWP) of India was first formulated in
(A) 2002
(B) 1987
(C) 2000
(D) 1989

37. The Plastic Waste Management Rules, 2016, the latest amendment the thickness of plastic carry bags is increased from
(A) 50 to 75 microns
(B) 75 to 120 microns
(C) 75 to 100 microns
(D) 40 to 75 microns

38. Public Liability Insurance Act was enacted in the year
(A) 1993
(B) 1997
(C) 1991
(D) 1995

39. Water quality standards especially those for drinking water are set by
(A) Indian Council of Agricultural Research
(B) Ministry of Environment, Forest and Climate change
(C) Central Pollution Control Board
(D) The Indian Council of Medical Research

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40. Which of the following pair is incorrectly matched with regard to the source of water and the process ?
(A) Ground water – Infiltration process
(B) Desalinated water – Reclamation process
(C) Rain water – Osmosis process
(D) Surface water – Direct runoff process

41. The primary producers in the marine ecosystem are
(A) Protozoans and Algae
(B) Algae and Zooplankton
(C) Cyanobacteria and Algae
(D) Phytoplankton and Zooplankton

42. Red Panda has become an important animal because
(A) It has been chosen as state animal
(B) It is very important source for its fur
(C) It is only important member of food chain of all Indian forests
(D) Its name appears in Red Data Book

43. **Statement I** : No use of synthetic chemical pesticides is likely to reduce the crop yield as compared to their use.
Statement II : Alternative pest management practices are likely to improve crop yield.
On the basis of above statements, choose the answer.
(A) Both Statement I and Statement II are true
(B) Both Statement I and Statement II are false
(C) Statement I is true, but Statement II is false
(D) Statement I is false, but Statement II is true

44. Match the following.

List – I (Vegetation development)	**List – II (Nomenclature of succession)**
a. On a rock	1. Xerosere
b. In aquatic habitat	2. Psammosere
c. On coastal sand	3. Lithosere
d. In dry habitat	4. Hydrosere

Codes :

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

45. The ecosystem constitutes a systematic link between terrestrial and marine ecosystems is
(A) Grassland ecosystem
(B) Mangrove forest
(C) Desert ecosystem
(D) Fresh water ecosystem

46. 10 dB increase in noise pollution level represents
(A) 2-fold increase in sound intensity
(B) 10-fold increase in sound intensity
(C) 20-fold increase in sound intensity
(D) 100-fold increase in sound intensity

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47. Ozone in the stratosphere is primarily responsible for
(A) Acid rain
(B) Formation of smog
(C) Absorbing ultraviolet (UV) radiation
(D) Solar dimming

48. Match List – I and List – II containing different areas/zones and ambient levels of noise limits in night time.

List – I (Category of areas, zones)	List – II (Night time noise limits in dB)
a. Residential area	i. 70
b. Silent zone	ii. 55
c. Commercial area	iii. 45
d. Industrial area	iv. 40

Choose the correct answer from the options given below.
(A) a – iv, b – iii, c – i, d – ii
(B) a – iii, b – iv, c – ii, d – i
(C) a – iv, b – ii, c – i, d – iii
(D) a – iii, b – iv, c – i, d – ii

49. What is the permissible annual average concentration of sulfur dioxide (SO_2) in ambient air in residential area as per the National Ambient Air Quality Standards (NAAQS) 2009, in India ?
(A) 50 $\mu g/m^3$
(B) 80 $\mu g/m^3$
(C) 100 $\mu g/m^3$
(D) 30 $\mu g/m^3$

50. Following are the two statements on water purification process.
Assertion (A) : Flocculation is a process in which chemical coagulant is added to the water.
Reason (R) : Chemical coagulants facilitates the bonding between the particles of dispersion, creating larger aggregates which are easier to separate.
(A) Both (A) and (R) are correct, but (R) is not correct explanation of (A)
(B) Both (A) and (R) are correct and (R) is correct explanation of (A)
(C) (A) is not correct, but (R) is correct
(D) (A) is correct, but (R) is not correct

51. The refuse is first emptied onto the platform and then the machinery is used to push solid waste into the transport vehicle in
(A) A direct discharge type of station
(B) An indirect discharge type of station
(C) A storage discharge type of station
(D) A regional discharge type of station

52. Which one of the following separates combustible wastes from non-combustible before burning process ?
(A) A steam-derived fuel system
(B) A glass-derived fuel system
(C) A metal-derived fuel system
(D) A refuse-derived fuel system

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53. In modern landfills, methane movement is controlled by
(A) Impermeable barriers and water-vending system
(B) Permeable reactive barriers and water-vending system
(C) Impermeable barriers and gas-venting system
(D) Permeable reactive barriers and gas-venting system

54. Class F flyash is derived from
(A) Anthracite and bituminous coal
(B) Lignite and subbituminous coal
(C) Peat and subbituminous coal
(D) Peat and lignite coal

55. Cement industries are currently using flyash as pozzolanic material for the manufacturing of
(A) Portland Pozzolana Cement (PPC)
(B) Wetland Pozzolana Cement (WPC)
(C) Newland Pozzolana Cement (NPC)
(D) Zetland Pozzolana Cement (ZPC)

56. Which of the following evaluate environmental performance of industry ?
(A) Environmental Impact Assessment
(B) Social Impact Assessment
(C) Environmental Audit
(D) Environmental Impact Statement

57. Leopold matrix is an example of
(A) Magnitude matrix
(B) Stepped matrix
(C) Simple matrix
(D) Time dependent matrix

58. Read Assertion (A) and Reason (R) carefully and select from the options given.
Assertion (A) : Identification of irreversible impacts can be a significant issue in an EIA.
Reason (R) : Environmental resources cannot be replaced ; once destroyed, some may cost forever.
(A) Both (A) and (R) are true and (R) is the correct explanation of (A)
(B) Both (A) and (R) are true, but (R) is not correct explanation of (A)
(C) (A) is true, but (R) is false
(D) (A) is false, but (R) is true

59. How much will be resultant noise levels when four machineries in the workshop will emit the sound level of 53 dB each ?
(A) 56 dB
(B) 59 dB
(C) 66 dB
(D) 63 dB

60. Which of the following is *not* a characteristics of a major project ?
(A) Substantial capital investment
(B) Wide ranging impacts
(C) Insignificant impacts
(D) Cover large areas and employ large numbers

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61. The correct order of decreasing pH of the solutions of HCl, NH_3, NaOH and CH_3COOH having same solute concentration is
(A) $NH_3 > NaOH > CH_3COOH > HCl$
(B) $NaOH > NH_3 > HCl > CH_3COOH$
(C) $NaOH > NH_3 > CH_3COOH > HCl$
(D) $NH_3 > CH_3COOH > NaOH > HCl$

62. The meso compounds have minimum number of chiral centres
(A) 0
(B) 1
(C) 2
(D) 3

63. Trigonal planar shape of a molecule indicates
(A) sp^2
(B) sp^3
(C) sp^3d
(D) sp

64. Which soil type is having acidic pH ?
(A) Alluvial soil
(B) Laterite soil
(C) Black soil
(D) Red soil

65. Bond order in $N \equiv N$, $H - C \equiv C - H$, C – H and H – H is
(A) 3, 2, 2 and 1 respectively
(B) 2, 3, 1 and 1 respectively
(C) 3, 3, 1 and 1 respectively
(D) 3, 3, 2 and 1 respectively

66. Announcement of 'loss and damage funds' to help developing countries for coping with climate change was an outcome of
(A) COP 28
(B) COP 27
(C) COP 21
(D) COP 26

67. Which animals are badly affected when a large habitat is broken up into small fragments due to various human activities ?
(A) Extinct species
(B) Migratory species
(C) Non-migratory species
(D) Endangered species

68. Match List – I and List – II.

List – I (International treaty)	**List – II (Goal)**
a. Paris Agreement	i. Reduce greenhouse gas emissions
b. Kyoto Protocol	ii. Limit global temperature rise to below 2°C
c. Montreal protocol	iii. Climate change mitigation and finance
d. Copenhagen Accord	iv. Phasing out ozone depleting gases

Choose the correct option from the following :
(A) a – iii b – iv c – i d – ii
(B) a – i b – ii c – iii d – iv
(C) a – iii b – i c – iv d – ii
(D) a – iv b – i c – iii d – ii

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69. Scientists use the word hole as a metaphor for the area in which ozone concentration drop below the historical threshold of

(A) 320 DU

(B) 250 DU

(C) 100 DU

(D) 220 DU

70. Which is the primary mechanism through which trees sequester carbon ?

(A) Photosynthesis

(B) Respiration

(C) Transpiration

(D) Combustion

71. In Remote Sensing, the ratio between the Red band and the Near Infrared band is generally called
(A) Ocean Colour Monitor
(B) NDVI Index
(C) Digital Image Processing
(D) Atmospheric Window

72. Environmental education must be integral to all academic programmes as students need to be mainly sensitized about
(A) It's interdisciplinary and multidisciplinary nature
(B) It's emergence as a specialised field
(C) Relationship between culture and environment
(D) Environmental degradation and its consequences for life on earth

73. Dry adiabatic lapse rate is
(A) 6.5 °C/km
(B) 7.0 °C/km
(C) 9.8 °C/km
(D) 4.2 °C/km

74. Which Agro-climatic Zone of India is known for the cultivation of Mangoes and Coconuts ?
(A) Coastal Zone
(B) Warm Desert Zone
(C) Tropical Humid Zone
(D) Western Himalayan Zone

75. Saturation mixing ratio depends on
(A) Wind speed
(B) Pressure
(C) Altitude
(D) Temperature

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76. Which of the following statements are correct. If X = x follows Normal distribution with mean μ and standard deviation σ ?

i. Mean, median and mode of the distribution coincide.

ii. As x increases numerically normal probability curve decreases rapidly.

iii. The value of Pearson coefficients $\beta_1 = 3$ and $\beta_2 = 0$.

iv. The curve is bell shaped and symmetrical about the line $x = \mu$.

(A) i, ii and iii

(B) i, iii and iv

(C) i, ii and iv

(D) ii, iii and iv

77. If X and Y are independent Poisson variates such that probability mass function P (X = 1) = probability mass function P (X = 2) and probability mass function P (Y = 2) = probability mass function P (Y = 3) then the variance of (X – 2Y) is

(A) 14

(B) 18

(C) 22

(D) 26

78. In a series of houses actually invaded by small pox, 70% of the inhabitants are attacked and 85% have been vaccinated. What is the lowest percentage of the vaccinated that must have been attacked ?

(A) 60.7%

(B) 64.7%

(C) 70%

(D) 75%

79. Given the following data l_x is the number of rabbits living at age x.

age x :	0	1	2	3	4	5	6
l_x :	100	90	80	75	60	30	0

X, Y and Z are three rabbits of age 1, age 2 and age 3 years respectively. What is the probability that at least one of them will be alive for one year more ?

(A) $\frac{1}{720}$

(B) $\frac{719}{720}$

(C) $\frac{1}{620}$

(D) $\frac{519}{620}$

80. Given that X = 4Y + 5 and Y = kX + 4 are the lines of regression of Y on X and X on Y respectively. If the value of correlation coefficient between X and Y is 0.5 then what will be the value of k ?

(A) $\frac{1}{9}$

(B) $\frac{1}{16}$

(C) $\frac{1}{25}$

(D) $\frac{1}{36}$

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81. Which of the following is a cold ocean current ?
(A) Norwegian current
(B) California current
(C) Kuroshio current
(D) Leeuwin current

82. In Goldschmidt's classification scheme, lithophile elements are represented by
(A) Ca – Mg – Na
(B) Fe – Ni – Au
(C) Ar – Kr – Xe
(D) Cu – Pb – Zn

83. The most abundant element in the Earth's crust is
(A) Silicon (Si)
(B) Aluminium (Al)
(C) Iron (Fe)
(D) Oxygen (O)

84. Under increasing Pressure and Temperature if shale is transformed to slate, the process is attributed to
(A) Regional metamorphism
(B) Cataclastic metamorphism
(C) Contact metamorphism
(D) Shock metamorphism

85. A volcanic phenomena that involves hot, high density mixture of rock fragments, ash and expanding gases is called
(A) Pyroclastic flow
(B) Avalanche
(C) Slump
(D) Ash fall

86. The X-ray fluorescence technique used for the rapid determination of the elemental composition of flyash. This analysis revealed that there is a major portion of the following element in flyash
(A) Titanum
(B) Magnesium
(C) Potassium
(D) Silica

87. Which is one of the most frequently used polymers in the production of electrical and electronic equipment ?
(A) Acrylamide-Pentadiene-Styrene (APS)
(B) Acridinamine-Tetradiene-Styrene (ATS)
(C) Acrylonitrile-Butadiene-Styrene (ABS)
(D) Acrylonitrile-Hexadiene-Styrene (AHS)

88. Dioxin-bearing wastes are hazardous and considered in
(A) U list wastes
(B) F list wastes
(C) K list wastes
(D) P list wastes

89. Certain types of wastes that may cause problem to individuals or environments are classified as
(A) Hazardous waste
(B) Non-hazardous waste
(C) CCR waste
(D) Recyclable waste

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90. All non-hazardous solid waste collected from a community that requires collection and transport to a processing or disposal site is called
(A) Non-Biodegradable Solid Wastes (NBSW)
(B) Municipal Solid Waste (MSW)
(C) Non-Toxic Solid Waste (NTSW)
(D) A Community-Derived Solid Waste (CDSW)

91. Silica used in solar cell is known as
(A) Normal silicon
(B) Crystalline silicon
(C) Crushed silicon
(D) Powdered silicon

92. Major source of carbonaceous aerosols in urban areas is
(A) Biomass burning
(B) Construction activities
(C) Fossil fuel burning
(D) Household cooking

93. Which of the following compounds has the highest global warming potential ?
(A) CO_2
(B) CFC
(C) SF_6
(D) N_2O

94. In the formula of radiative forcing $\Delta T = \lambda \Delta F$ the λ is
(A) Global warming potential
(B) Climate sensitivity
(C) Henry's constant
(D) Absorption coefficient

95. Which State in India tops in the production of solar energy ?
(A) Himachal Pradesh
(B) Punjab
(C) Rajasthan
(D) Karnataka

96. _____ productivity is the highest productivity of an ecosystem.
(A) Net primary
(B) Primary
(C) Gross primary
(D) Secondary

97. The Alpine grassland which is rich in lichens are _____ grassland.
(A) Tropical
(B) Temperate
(C) Tundra
(D) Savanna

98. The use of antitoxin in the treatment of snakebite is an example of
(A) Dispositional antagonism
(B) Chemical antagonism
(C) Receptor antagonism
(D) Functional antagonism

99. Preservation of viable material of endangered species can be done by
(A) Gene pool
(B) Gene library
(C) Gene bank
(D) DNA bank

100. The rate of replacement of species along a gradient of habitat pertain to
(A) Alpha diversity
(B) Beta diversity
(C) Gamma diversity
(D) Species diversity

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