Test Booklet Code & Serial No.
प्रश्नपत्रिका कोड व क्रमांक

A

Paper-II
ENVIRONMENTAL SCIENCE

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)

JUN - 31225

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

Number of Pages in this Booklet : **24** 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
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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 उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
2. सदर प्रश्नपत्रिकेत 100 बहुपर्यायी 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. 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 विद्यार्थ्यांनी नोंद घ्यावी.
   (*iii*) वरीलप्रमाणे सर्व पडताळून पाहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर 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.

WRONG METHODS
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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. वर 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.

Environmental Science
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. In Remote Sensing, the places where energy (wavelength) passes with limited or no absorption is called .....

   (A) Rayleigh Scattering

   (B) Raman effect

   (C) Atmospheric window

   (D) Aurora borealis

2. The United Nations sustainable development goal 6 aims to :

   (A) Ensure healthy lives and promote well-being for all at all ages

   (B) Ensure availability and sustainable management of water and sanitation for all

   (C) End poverty in all forms everywhere

   (D) Take urgent action to combat climate change and its impact

3. The instrument used to measure wind speed is called :

   (A) Hydrometer

   (B) Anemometer

   (C) pH meter

   (D) Piezometer

4. Tropical deciduous forests are also known as :

   (A) Monsoon forests

   (B) Mangrove forests

   (C) Montane forests

   (D) Temperate forests

5. The stratosphere is characterized by a temperature profile that :

(A) Increases with altitude

(B) Decreases with altitude

(C) Remains constant with altitude

(D) Experiences rapid fluctuations

6. Which natural source contributes significantly to the release of sulfur dioxide (SO_2) into atmosphere ?

(A) Automobiles

(B) Volcanic eruptions

(C) Power plants

(D) Industrial combustion

7. Which property represents the amount of heat required to raise the temperature of a unit mass of a substance by one degree celsius ?

(A) Latent heat

(B) Specific heat

(C) Thermal conductivity

(D) Heat capacity

8. According to the second law of thermodynamics, in any energy transfer or transformation, the total entropy of a closed system always :

(A) Increases

(B) Decreases

(C) Reaches zero

(D) Negative

9. Which phenomenon explains that when a species becomes extinct, the plant and animal species also become extinct that are obligatory associated with the host species ?

(A) Aquaculture

(B) Fragmentation

(C) Invasion

(D) Co-extinction

10. Which instrument is commonly used to measure atmospheric pressure ?

(A) Tacometer

(B) Barometer

(C) Thermometer

(D) Anemometer

11. Which one of the following statements is correct ?

(A) Isotonic solutions have same density

(B) Isotonic solutions have same refractive index

(C) Isotonic solutions have same molar concentrations

(D) Isotonic solutions have same colour

12. A metal object has 25 g weight and volume of 5.2 cm^3. What is the density of the metal ?

(A) 4.68 g/cm^3

(B) 4.60 g/cm^3

(C) 4.80 g/cm^3

(D) 4.28 g/cm^3

13. The correct order of pH of 0.1 M solutions of HCl, KCl, NaCl and CH_3COOH is :

(A) $KCl > NaCl > HCl > CH_3COOH$

(B) $KCl > CH_3COOH > NaCl > HCl$

(C) $NaCl > KCl > CH_3COOH > HCl$

(D) $CH_3COOH > KCl > NaCl > HCl$

14. An atom which contains no Neutrons is :

(A) Hydrogen

(B) Helium

(C) Deuterium

(D) Tritium

15. Which one of the following compounds is not an example of ionic bonding ?

(A) NaCl

(B) KF

(C) HCl

(D) MgS

16. Oxidation state of chlorine in HCl, Cl_2 and $NaClO_3$ are :

(A) –1, zero and +2 respectively

(B) +1, zero and +5 respectively

(C) –1, zero and +5 respectively

(D) Zero, Zero and +3 respectively

17. Regarding solubility of gases which of the following statements is correct ?

(A) Henry's constant increases with the increase in temperature

(B) Henry's constant decreases with the increase in temperature

(C) Henry's constant does not change with the temperature

(D) Henry's constant decreases with the decrease in solubility of gas

18. Which one of the following compounds is not considered as seasalt ?

(A) NaCl

(B) $MgCl_2.6H_2O$

(C) Na_2SO_4

(D) NH_4NO_3

19. Most abundant soil in India are :

(A) Desert

(B) Laterite

(C) Red

(D) Alluvial

20. Which of the following analytical techniques is not used for organic determination directly ?

(A) GC

(B) HPLC

(C) AAS

(D) TLC

21. Reptiles and insects are adapted to dry conditions due to .....

(A) Impervious integument

(B) Fur on the body

(C) Hairs on the body

(D) Thorns on the body

22. In Tundra biome the soil moisture is frozen at a depth of few centimeters from the top is :

(A) Frost

(B) Ice frost

(C) Snow frost

(D) Permafrost

23. LD50 refers to .....

(A) The dose at which 50% of all test animals die

(B) The dose at which 50% of the animals demonstrate a response to the chemicals

(C) The dose at which all of the test animals die

(D) The dose at which at least one of the test animals dies.

24. Choose correct answer against the following statements :

(*a*) Fossil fuels can be made in the laboratory

(*b*) CNG is a more polluting fuel than petrol

(*c*) Coke is an almost pure form of carbon

(*d*) Coal tar is a mixture of various substances

(A) All true

(B) All false

(C) (*a*) (*b*) (*c*) are false and (*d*) is true

(D) (*a*) (*b*) (*d*) are false and (*c*) is true

25. Which of the following symbolises correct sequence in hydrosphere ?

(A) Cyperus → Diatoms → Hydrilla → Wolffia → Populus

(B) Diatoms → Wolffia → Hydrilla → Cyperus → Populus

(C) Diatoms → Hydrilla → Wolffia → Cyperus → Populus

(D) Hydrilla → Wolffia → Cyperus → Populus → Diatoms

26. An organisms niche is :

(A) The range of temperature that the organism need to live

(B) The functional role played by the organism where it lives

(C) All the biological and physical factors in the organism's environment

(D) The way organism uses the range of physical and biological conditions in which it lives

27. Which types of forests are found at an altitude of 5300 ft on mountains of Himalayas ?

(A) Taiga forest

(B) Dry deciduous forest

(C) Moist tropical forest

(D) Deciduous forest

28. Identify the correct sequence of energy flow through various levels of an ecosystem :

(A) Solar energy → Green plants → Carnivores

(B) Solar energy → Green plants → Herbivores

(C) Solar energy → Carnivores → Herbivores

(D) Solar energy → Herbivores → Carnivores

29. The Indian Rhino is found in its natural habitat in :

(A) Corbett National Park

(B) Sundarbans

(C) Kaziranga National Park

(D) Kanha National Park

30. Bioindicator plant for detection of presence of SO_2 and HF in air is :

(A) Orchid

(B) Apricot

(C) Lichen

(D) Loranthus

31. In Goldschmidt's scheme of classification, ... represent chalcophile elements.

(A) Ar – Kr – Xe

(B) Ca – Mg – Na

(C) Fe – Ni – Au

(D) Cu – Pb – Zn

32. Addition of nitrate and phosphate runoff to water bodies results in :

(A) Hypoxia

(B) Anoxia

(C) Eutrophication

(D) Solifluction

33. NTU is a unit for :

(A) Colour

(B) Turbidity

(C) pH

(D) Electrical conductivity

34. As per IS 10500 : (2012) Drinking Water Specification, the permissible limit in the absence of alternate source for total Hardness (as $CaCO_3$) mg/L is .....

(A) 200

(B) 250

(C) 1000

(D) 600

35. Coefficient of permeability is also referred to as .....

(A) Effective porosity

(B) Field capacity

(C) Specific yield

(D) Hydraulic conductivity

36. Arsenic–a common geogenic hazard in groundwater is common in .....

(A) Tamil Nadu

(B) Maharashtra

(C) West Bengal

(D) Himachal Pradesh

37. In a hydrometeorological station, temperature is measured using .....

(A) Sunshine Recorder

(B) Pan Evaporimeter

(C) Stevenson's screen

(D) Piezometer

38. Peat is a type of .....

(A) Ferralsol

(B) Histosol

(C) Gleysol

(D) Podsol

39. The boundary between the SIAL and SIMA is called .....

(A) Mohorovicic discontinuity

(B) Conrad discontinuity

(C) Gutenberg discontinuity

(D) Lehman discontinuity

40. Solid-Solid diffusion, phase transition and chemical reactions are characteristic of .....

(A) Igneous rocks

(B) Metamorphic rocks

(C) Metasomatic rocks

(D) Sedimentary rocks

41. Which one of the following electromagnetic radiations has the lowest energy ?

(A) Y-rays

(B) Microwave

(C) UV

(D) Visible

42. Solar energy is transmitted to Earth surface through :

(A) Conduction

(B) Radiation

(C) Convection

(D) Advection

43. Which one of the following is essentially present in the fossil fuels along with carbon ?

(A) Nitrogen

(B) Hydrogen

(C) Sulphur

(D) Oxygen

44. The order of CO_2 emitter countries currently is :

(A) India > China > USA

(B) USA > China > India

(C) China > India > USA

(D) China > USA > India

45. The increasing order of global Warming Potential (GWP) of the greenhouse gases :

(A) $CH_4 > CO_2 > N_2O$

(B) $N_2O > CH_4 > CO_2$

(C) $N_2O > CO_2 > CH_4$

(D) $CH_4 > CO_2 > N_2O$

46. The Headquarter of International Solar Alliance (ISA) is located is :

(A) Paris

(B) Tokyo

(C) New York

(D) Gurugram

47. Which one of the following criteria is not primary to select the site of a Hydroelectric power plant ?

(A) Altitude

(B) Water availability

(C) Rocky land

(D) Huge Catchment area

48. Most common gas linked with gas hydrates is :

(A) CO_2

(B) CH_4

(C) SO_2

(D) DMS

49. Which state tops in wind energy production ?

(A) Uttar Pradesh

(B) Rajasthan

(C) Tamil Nadu

(D) Bihar

50. The current global CO_2 emissions are approximately :

(A) 10 billion tonnes

(B) 20 billion tonnes

(C) 25 billion tonnes

(D) 35 billion tonnes

51. A stream of waste water having COD of 30 ppm discharges water at the rate of 100 L/s into another stream with a flow rate of 600 L/s and COD of 10 ppm. Assuming instantaneous and complete mixing, what is the resultant COD just downstream from the point of discharge ?

(A) 20 ppm

(B) 12.85 ppm

(C) 5.71 ppm

(D) 0.15 ppm

52. What is the permissible annual average concentration of $PM_{2.5}$ in ambient air in residential area as per the National Ambient Air Quality Standards (NAAQS), 2009 in India ?

(A) 60 $\mu g/m^3$

(B) 100 $\mu g/m^3$

(C) 40 $\mu g/m^3$

(D) 5 $\mu g/m^3$

53. Which type of lakes have the water with high drinking quality ?

(A) Oligotrophic

(B) Mesotrophic

(C) Eutrophic

(D) Hypereutrophic

54. What is a common secondary pollutant formed through the photochemical reaction of nitrogen oxides and volatile organic compounds ?

(A) Carbon monoxide (CO)

(B) Sulfur dioxide (SO_2)

(C) Ozone (O_3)

(D) Particulate matter (pm)

55. According to Biomedical Waste Management Rules 2016 of Government of India, which coloured plastic bags should be used for discarded and contaminated metal sharps such as needle, syringes, scalpels, blades etc ?

(A) Red

(B) Blue

(C) Yellow

(D) White

56. What is the primary purpose of determining mixing height in air quality management ?

(A) To estimate emission rate

(B) To assess the vertical dispersion of pollutants

(C) To calculate air temperature

(D) To measure wind speed

57. Which of the following is a major pollutant found in contaminated soil ?

(A) Nitrogen oxides

(B) Heavy metals

(C) Hydrocarbons

(D) Mineral oil

58. Match List-I and List-II containing different areas/zones and ambient levels of noise in night time :

List I

(Category of Area/Zone)

(*a*) Commercial Area

(*b*) Industrial Area

(*c*) Silent Zone

(*d*) Residential Zone

List II

(Night time Noise Limits in db)

(*i*) 40

(*ii*) 45

(*iii*) 55

(*iv*) 70

Choose the correct answer from the options given below :

	(*a*)	(*b*)	(*c*)	(*d*)
(A)	(*iii*)	(*iv*)	(*ii*)	(*i*)
(B)	(*iv*)	(*iii*)	(*i*)	(*ii*)
(C)	(*iii*)	(*iv*)	(*i*)	(*ii*)
(D)	(*iv*)	(*ii*)	(*i*)	(*iii*)

59. What is the permissible annual average concentration of lead (Pb) in ambient air in residential area as per the National Ambient Air Quality standards (NAAQS) 2009 in India ?

(A) 1.0 $\mu g/m^3$

(B) 2.0 $\mu g/m^3$

(C) 0.50 $\mu g/m^3$

(D) 5.0 $\mu g/m^3$

60. Which one of the following is correct sequence of a typical process setup for treatment of surface feed water to potable water ?

(A) Disinfection → Filtration → Sedimentation → Flocculation → Coagulation → Screening

(B) Screening → Coagulation → Flocculation → Sedimentation → Filtration → Disinfection

(C) Screening → Flocculation → Coagulation → Filtration → Sedimentation → Disinfection

(D) Disinfection → Screening → Coagulation → Flocculation → Sedimentation → Filtration

61. During the combustion of pulverised soil, the oxidation of carbon, nitrogen and sulphur in the organic coaly matter produces :

(A) Carbon dioxides, nitrogen oxides and sulphur oxides

(B) Carbon dioxides, nitrogen oxides, and copper oxides

(C) Carbon dioxides, sulphur oxides, and zinc oxides

(D) Carbon dioxides, copper oxides and zinc oxides

62. The Minamata bay in Japan now is widely known for its contamination with a highly toxic metal :

(A) Arsenic

(B) Lead

(C) Mercury

(D) Chromium

63. Which has specified guidelines for construction of landfill sites for hazardous waste ?

(A) The Central Pollution Control Board of India

(B) The National Pollution Control Board of Maharashtra

(C) The National Pollution Control Board of Hyderabad

(D) The National Pollution Control Board of Allahabad

64. Which is considered one of the green fuels that resolve the problems that exist with municipal waste and energy requirements ?

(A) Toxic Waste-Derived Fuel [TWDF]

(B) Refuse Derived Fuel [RDF]

(C) Hazardous Waste–Derived Fuel [HWDF]

(D) Pharma Waste–Derived Fuel [PWDF]

65. In which of the following slaked lime [$Ca(OH)_2$] used for neutralization of hazardous waste ?

(A) Continuously stirred chemical reactor

(B) Immobilized stirred tank

(C) Fluidized-bead reactor

(D) Air lift fermenter

66. Which analysis is the most powerful tool for direct identification as well as determination of constitutent minerals and has been extensively used in research ?

(A) SEM

(B) X-ray diffraction

(C) FTIR

(D) DLS

67. Which is one of the chemical methods of hazardous waste treatment ?

(A) Sedimentation

(B) Electrodialysis

(C) Precipitation

(D) Resin adsorption

68. Which is performed by physical means and involved separation, wasting griding, remelting and processing plastic wastes ?

(A) Mechanical recycling

(B) Chemical recycling

(C) Thermal recycling

(D) Biological recycling

69. Which is NOT a type of plastic wastes degradation which occurs during processing ?

(A) Thermal

(B) Mechanical

(C) Chemical

(D) Contaminical

70. Many plastic components are used as ..... for blast furnaces.

(A) reducing agents

(B) oxidising agents

(C) protecting agents

(D) infectious agents

71. Which among the following is the unit of measurement of the "Ecological Footprint" ?

(A) Global Hectare

(B) Gallon per capita

(C) Cubic meter

(D) Man Hour

72. Copenhagen Conference on climate change was held as a sequel to :

(A) Montreal Protocol

(B) Basel Convention

(C) Kyoto Protocol

(D) Ramsar Convention

73. Match Column-I with Column-II :

Column-I

(*a*) Kyoto Protocol

(*b*) Copenhagen Summit

(*c*) Montreal Protocol

(*d*) Stockholm Conference

Column-II

(1) 2009

(2) 1972

(3) 1997

(4) 1987

Codes :

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

74. Hygrometer is used for estimating :

(A) Water content of soil

(B) Water vapor content of Air

(C) Capillary potential of soil water

(D) Specific gravity of a liquid

75. Identify the correct statement :

(A) Public hearing is conducted before environmental clearance of the project

(B) Public hearing is conducted before EIA

(C) Public hearing is conducted prior to site selection

(D) Public hearing is conducted prior to approval of Terms of Reference

76. Which of the following impact identification method is easy to use and understand as well as popular ?

(A) Checklists

(B) Network

(C) Matrix

(D) Overlay Maps

77. Match the following :

List-I

(*a*) Wind Valley effect

(*b*) Land Breeze effect

(*c*) Sea Breeze effect

(*d*) Heat island effect

List-II

(*i*) Air moves from land to sea

(*ii*) Air moves from plain surface to valley

(*iii*) Air moves from outside to city

(*iv*) Air moves from sea to land

Codes :

	(*a*)	(*b*)	(*c*)	(*d*)
(A)	(*i*)	(*ii*)	(*iii*)	(*iv*)
(B)	(*ii*)	(*i*)	(*iv*)	(*iii*)
(C)	(*iv*)	(*iii*)	(*ii*)	(*i*)
(D)	(*iii*)	(*iv*)	(*i*)	(*ii*)

78. Which of the following is correct for environmental setting process of EIA ?

(A) Description of total environment

(B) Description of affected environment

(C) Description of non-affected environment

(D) Description of social environment

79. Assertion (A) : Wind roses are graphical representation of wind data.

Reason (R) : Wind roses represents % frequencies of wind speed and wind direction for a given location.

Codes :

(A) Both (A) and (R) are true and (R) is 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

80. Which of the following is true about the inversion ?

(A) Temperature of Earth's surface is less than high altitudes in the atmosphere

(B) Temperature of Earth's surface and high altitude atmosphere is same

(C) Temperature of Earth's surface is more than high altitudes in the atmosphere

(D) Temperature changes appears alternately with altitude in the atmosphere from earth's surface.

81. The variance value for an F-distribution with parameters $V_1 = 5$ and $V_2 = 9$ is :

(A) 1.587

(B) 1.378

(C) 2.578

(D) 1.498

82. Let X follow a Poisson distribution with probability mass function $P(x = 1) = P(x = 3)$. What is the mean value of this distribution ?

(A) $\sqrt{2}$

(B) $\sqrt{3}$

(C) $\sqrt{6}$

(D) 7

83. For a frequency distribution the coefficient of skewness based upon the quartiles is 0.6. If the sum of the upper and lower quartiles is 100 and median is 38, What is the value of lower and upper quartiles :

(A) 40 and 60

(B) 20 and 80

(C) 30 and 60

(D) 30 and 70

84. The first group sample has 100 items with mean 15 and standard deviation 3.0. If the whole group has 250 items with mean 15.6 and standard deviation $\sqrt{13.44}$. What is the standard deviation of the second group ?

(A) 2

(B) 4

(C) 6

(D) 8

85. Which of the following factors are responsible for the E-size of the sample in sampling schemes ?

(*i*) Precision of the estimates required is an important factor in determining the size of a sample

(*ii*) For greater precision, usually a larger sample is preferred

(*iii*) For greater precision usually a smaller sample is preferred

(*iv*) More is the heterogeneity, a larger is the size of the sample.

(A) (*i*), (*ii*) and (*iii*)

(B) (*i*), (*ii*) and (*iv*)

(C) (*i*), (*iii*) and (*iv*)

(D) (*ii*), (*iii*) and (*iv*)

86. Which of the following statements are correct for Karl Pearson's correlation coefficient ?

(*i*) The scatter diagram of the data will give a straight line curve

(*ii*) The scatter diagram of the data will not give a straight line curve

(*iii*) Each of the variables is being affected by a large number of independent contributory causes of such a nature as to produce normal distribution

(*iv*) The forces so operating on each of the variable series are not independent of each other but are related in a causal fashion.

(A) (*i*), (*ii*) and (*iii*)

(B) (*i*), (*ii*) and (*iv*)

(C) (*i*), (*iii*) and (*iv*)

(D) (*ii*), (*iii*) and (*iv*)

87. If a person who does not know typing is asked to type the manuscript of a book, the probability of the event that he will type it correctly without any mistake is ....

(A) 1

(B) 0

(C) $\frac{3}{4}$

(D) $\frac{2}{3}$

88. Let X follows binomial distribution with mean and variance are 4 and $\frac{4}{3}$. What is probability of $(x \geq 1)$?

(A) 0.00137

(B) 0.71256

(C) 0.81343

(D) 0.99863

89. In case of natural no. m attributes, the total number of ultimate class frequencies is :

(A) 2^m

(B) 2^m-1

(C) 2^m+1

(D) m

90. Let $8x - 10y + 66 = 0$ and $40x - 18y = 214$ be the lines of regression of Y on X and X on Y respectively. What is the correlation coefficient between X and Y ?

(A) 0.5

(B) – 0.5

(C) 0.6

(D) – 0.6

91. Olive Ridley Sea turtle have begun emerging on the sea waters of :

(A) Devgad Coast

(B) Odisha Coast

(C) Malvan Coast

(D) Sundarbans

92. Which of the following is the main cause of desertification ?

(A) Irrigation

(B) Mining

(C) Plantation

(D) Overgrazing

93. Which one of the following compounds is NOT a greenhouse gas ?

(A) N_2O

(B) CH_4

(C) NO_2

(D) O_3

94. The Intergovernmental Panel on Climate Change (IPCC) was established by :

(A) United Nations

(B) World Meteorological Organization (WMO)

(C) United Nations Environment Programme (UNEP)

(D) World Bank

95. India targets for Net Zero by :

(A) 2045

(B) 2070

(C) 2050

(D) 2030

96. What is the Bharat Stage (BS) emission standard applicable for petrol and diesel vehicle in India as of 2023 ?

(A) BS – IV

(B) BS – V

(C) BS – VI

(D) BS – VII

97. National Water Mission was launched in .....

(A) 2008

(B) 2000

(C) 2011

(D) 2002

98. What happens when alien species are introduced unintentionally ?

(A) Decrease of alien species

(B) Increase in habital

(C) They turn invasive and cause increase species

(D) They turn invasive and cause decline or extinction of indigenous species

99. What is the main objective of the Swachh Bharat Abhiyan ?

(A) Increasing air quality in major cities

(B) Eliminating open defecation and improving waste management

(C) Developing renewable energy resources

(D) Reducing traffic congestion in urban areas

100. Which of the following diseases is caused due to the deficiency of iodine ?

(A) Solitary thyroid nodules

(B) Goitre

(C) Thyroiditis

(D) Thyroid cancer

ROUGH WORK