

Environmental Science Paper III

Time Allowed : 2½ Hours]

[Maximum Marks : 150

Note : This paper contains **Seventy Five (75)** multiple choice questions, each question carrying **Two (2)** marks. Attempt *All* questions.

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|---|---|
| 1. What is the 'tectonic nature' of Lithosphere under Himalaya ?

(A) Diversion

(B) Conservative

(C) Convergent

(D) Rift | 3. Which one of the following clouds is composed mostly of ice ?

(A) Cirrus

(B) Altocumulus

(C) Altostratus

(D) Nimbostratus |
| 2. The chloride makes up % of the salt in water.

(A) 35

(B) 45

(C) 55

(D) 65 | 4. How much energy radiated by Sun reaches earth ?

(A) About 80%

(B) About 50%

(C) About two-billionths

(D) About one-hundredth |
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[P.T.O.]

5. The terrestrial long wave radiation emitted by the Earth lies in a wavelength range of micrometer.

- (A) 1 — 10
- (B) 4 — 100
- (C) 1 — 50
- (D) 10 — 15

6. Atmospheric pressure is expressed in units of hPa (hecto Pascal). 1hPa is nearly equal to

- (A) 1000 dynes/cm²
- (B) 100 dynes/cm²
- (C) 10 Pascal
- (D) 1000 Pascal

7. Sustainable development is based on

- (A) Calculated use of the resources
- (B) Market demand for natural resources
- (C) Optimum use of available natural resources
- (D) Available resources and human needs

8. A coloured substance shows 50% transmittance on a colorimeter. How much will be its absorbance ?

- (A) 0.5
- (B) 0.4
- (C) 2.0
- (D) 0.3

9. In order to prepare 100 mL solution of 10 ppm NaCl, how many grams of NaCl are needed ?
- (A) 5.85 mg
(B) 1 mg
(C) 10 mg
(D) 58.5 mg
10. A radioactive sample shows an activity of 60,000 cpm. How much will be its activity after 3 half-lives ?
- (A) 20,000 cpm
(B) 15,000 cpm
(C) 30,000 cpm
(D) 7,500 cpm
11. Which of the following elements can not be determined by Atomic Absorption Spectrophotometry ?
- (A) Na
(B) K
(C) Cd
(D) Br
12. Which indicator is used in COD estimation ?
- (A) Eriochrome black T
(B) Murexide
(C) Ferroin
(D) Silver chromate
13. Which metal is associated with minamata disease ?
- (A) Pb
(B) Cr
(C) Hg
(D) Fe

14. Which of the following forms major component of soil ?
- (A) Mineral matter
 - (B) Organic matter
 - (C) Soil moisture
 - (D) Soil vapour
15. method is useful in chemical speciation.
- (A) Ion chromatography
 - (B) Spectrophotometry
 - (C) Flame photometry
 - (D) Atomic absorption spectrophotometry
16. Which of the following is *not* associated with the prehistoric man ?
- (A) Tools
 - (B) Fire
 - (C) Collective hunting
 - (D) Wheel
17. What has mainly caused rapid increase in human population ?
- (A) Agriculture revolution
 - (B) Industrial revolution
 - (C) Better health care
 - (D) Economic development
18. Ecosystem is a discrete unit that consists of living and non-living parts interacting to form a
- (A) Stable system
 - (B) Dynamic system
 - (C) Unstable system
 - (D) Unpredictable system

19. In ecological succession is *not* a characteristic sequence of development stage.
- (A) Climax
(B) Pioneer
(C) Stabilization
(D) Colonizers
20. Biodiversity conservation does *not* include
- (A) Genetic diversity
(B) Cloning diversity
(C) Species diversity
(D) Ecosystem diversity
21. The dominant species in a terrestrial pioneer community are
- (A) Grasses
(B) Lichens
(C) Beetles
(D) Conifers
22. Which of the following organisms is used as biofertilizer for leguminous plants ?
- (A) *Bacillus subtilis*
(B) *Rhizobium* sp.
(C) *Acetobacter diazotrophicus*
(D) *Azotobacter chroococum*
23. The following are the examples of plant pathogens. Which one of them is air-borne ?
- (A) *Phytophthora infestans*
(B) *Sclerotium rolfsii*
(C) *Rhizoctonia solani*
(D) *Cercospora arachidicola*

24. What type of earthquakes would most likely occur in Maharashtra ?
- (A) Subduction type
 - (B) Intra plate type
 - (C) Inter-plate type
 - (D) Oceanic ridge type
25. Which REE has application as a chemical oxidizing agent ?
- (A) La
 - (B) Ce
 - (C) Nd
 - (D) Eu
26. The normal date of onset of South West Monsoon over Mumbai is
- (A) 15th June
 - (B) 7th June
 - (C) 10th June
 - (D) 1st June
27. Which of the following areas is affected most frequently by floods during pre-monsoon season ?
- (A) NE India
 - (B) NW India
 - (C) Indogangetic plains
 - (D) Maharashtra
28. Known deposits of a material that can be extracted profitably are called
- (A) Resources
 - (B) Reserves
 - (C) Undiscovered reserves
 - (D) Energy consumption

29. It is possible to obtain infrared imagery during the night because of the long wave radiation which is associated with energy
- (A) Scattering
(B) Refraction
(C) Emission
(D) Reflection
30. North east Monsoon is season of rains for
- (A) Konkan
(B) Tamil Nadu
(C) Vidarbha
(D) Gujarat
31. Anaerobic digestion converts biomass into
- (A) Methane and Carbon dioxide
(B) CO and SO₂
(C) CO₂ and CO
(D) H₂S and CO₂
32. What type of 'coal' is commonly found in India ?
- (A) Bituminous coal
(B) Anthracite
(C) Lignite
(D) Peat
33. Which of the following is the most potential geothermal province ?
- (A) Himalaya
(B) Narmada
(C) West coast
(D) East coast

34. Which of the following is the potential oil bearing area in India ?
- (A) Vidarbha
 - (B) Chhattisgarh
 - (C) Tripura
 - (D) Chandigarh
35. Despite the negative impacts, thermal power plants using fossil fuel are most popular. Globally these account for nearly % of the total power generated.
- (A) 50%
 - (B) 60%
 - (C) 80%
 - (D) 70%
36. Among the different fossil fuels which has the lowest emission per kilogram ?
- (A) Petrol
 - (B) Diesel
 - (C) Gas
 - (D) Coal
37. Currently nuclear power provides approximately % of the world's total energy.
- (A) 7
 - (B) < 1
 - (C) 30
 - (D) 20

38. Which of the following wastes causes thermal pollution ?

- (A) Spent sulphite liquor
- (B) Distillery spent wash
- (C) Dairy effluent
- (D) Slaughter house effluent

39. Which of the following groups of organisms sequesters CO₂ as well as nitrogen ?

- (A) Green algae
- (B) Fungi
- (C) Cyanobacteria
- (D) Archaeobacteria

40. *E.coli* is an indicator of fecal pollution of water, because it occurs in

- (A) Water
- (B) Soil
- (C) Neither soil nor water
- (D) Only in intestine

41. Addition of HgSO₄ to water sample before COD estimation is to

- (A) Deplete chloride content
- (B) Deplete organic matter content
- (C) Enhance oxidation of organic matter
- (D) Catalyse oxidation

42. What is the effect of carbon monoxide as an air pollutant on human beings ?

- (A) Irritation of eyes
- (B) Lowering of haemoglobin in blood
- (C) Sore throat
- (D) Sneezing

43. Which of the following is least air polluting with their use as a fuel ?

- (A) Petrol
- (B) Diesel
- (C) Coal
- (D) Gas

44. Which of the following involves physiochemical treatment ?

- (A) Primary
- (B) Secondary
- (C) Tertiary
- (D) Advanced

45. Environmental impact statement is a summary of EIA.

- (A) Technical
- (B) Non-technical
- (C) Exhaustive
- (D) Comprehensive

46. Description of environment as it exists in nature is an :

- (A) Environmental Inventory
- (B) Environmental Setting
- (C) Environmental Audit
- (D) Environmental Management Plan

47. The expanded EIA is termed as :
- (A) Rapid EIA
 - (B) Strategic EIA
 - (C) Short term EIA
 - (D) Special EIA
48. The irreversible impacts can be a significant issue in EIA as these are :
- (A) Susceptible to mitigation measures
 - (B) Not susceptible to mitigation measures
 - (C) Irradicable by mitigation measures
 - (D) Managed properly by mitigation measures
49. The secondary and tertiary impacts of initiating action can be addressed by :
- (A) Simple matrix
 - (B) Stepped or cross impact matrix
 - (C) Checklists
 - (D) Maps
50. Increasing urbanization in India is likely to affect food production in the future by
- (A) Road widening in agriculture lands
 - (B) Construction of houses in city fringe areas
 - (C) Conversion of top soil from agriculture lands in brick making
 - (D) Using groundwater for domestic needs

51. Urban planning essentially should take into account of the inhabitants.
- (A) Health
- (B) Transportation facility
- (C) Proper sanitation
- (D) Clean water supply
52. A sustainable crop is the one which
- (A) uses more water
- (B) changes with market demand
- (C) is grown as per local agro-climatic conditions
- (D) is grown as per the wish of the farmer
53. The average per capita per day municipal solid waste generated in the Indian towns and cities is :
- (A) 1 kg
- (B) 0.5 kg
- (C) 0.33 kg
- (D) 0.1 kg
54. Which of the following is the safe method for biomedical waste disposal ?
- (A) Burning
- (B) Incineration
- (C) Landfilling
- (D) Open dumping

55. Every person cultivating or dealing in, a specified plant or part or derivative thereof shall seek permission from chief wildlife warden as per :
- (A) Conservation Act, 1980
- (B) Indian Forest Act, 1982
- (C) Wildlife (Protection) Act, amended 1991
- (D) Wildlife (Protection) Act, 1972
56. The AIR Prevention and Control of Pollution Act was passed by the Parliament in
- (A) 1972
- (B) 1978
- (C) 1981
- (D) 1986
57. The protection of wet land and its flora and fauna is internationally covered by
- (A) Kite's Convention
- (B) Ramsar Convention
- (C) Montreal Protocol
- (D) Paris Convention
58. The first global convention for protection of ozone layer was held in for further action ?
- (A) Bonn Convention, 1979
- (B) Vienna Convention, 1987
- (C) Montreal Protocol, 1989
- (D) Kyoto Protocol, 1996

59. CHIPKO ANDOLAN deals with protection of
- (A) Forests in Uttar Pradesh
(B) Forest in Madhya Pradesh
(C) Wildlife in Orissa
(D) Marine organisms in rivers
60. Which part of the human ear is composed of the sensory cells ?
- (A) Inner
(B) Middle
(C) Outer
(D) Pinnae
61. The normal conversation of human beings is in the sound frequency of
- (A) 500 to 2000 Hz
(B) 50 to 5000 Hz
(C) 0 to 200 Hz
(D) 100 to 1000 Hz
62. Identify the relationship between arithmetic mean, geometric mean and harmonic mean ?
- (A) $AM > GM > HM$
(B) $AM < GM < HM$
(C) $GM > HM > AM$
(D) $HM > AM > GM$
63. The sample variance of a random sample from the standard normal distribution follows ?
- (A) The Chi-square distribution
(B) Approximately normal distribution
(C) Student's t distribution
(D) Ratio of two normal distributions

64. The mean and variance of the Poisson distribution satisfy the following relationship ?
- (A) Mean $>$ variance
 - (B) Mean $<$ variance
 - (C) Mean = variance
 - (D) Mean may or may not be smaller than the variance
65. A non-homogeneous system of linear equations has infinitely many solutions if
- (A) It has at least two distinct solutions
 - (B) The matrix of coefficients has a unique inverse
 - (C) The equations are inconsistent
 - (D) The matrix of coefficients is indefinite
66. In a test of hypothesis, the type I error is defined by the event of
- (A) Accepting the hypothesis that is false
 - (B) Rejecting the hypothesis that is true
 - (C) Accepting the null hypothesis
 - (D) Rejecting the null hypothesis when it is true
67. Population growth models can be
- (A) Linear or exponential
 - (B) Qualitative or quantitative
 - (C) Based on counts or measurements
 - (D) Developed using population characteristics

68. Which of the following is an example of recycling of waste ?
- (A) Sedimentation of suspended solids
 - (B) Conversion of lignocellulosic waste into protein rich biomass
 - (C) Coagulation of suspended solids
 - (D) Precipitation of dissolved solids
69. Which of the following is an example of nosocomial pathogen ?
- (A) *Salmonella typhi*
 - (B) *Vibrio cholerae*
 - (C) Hepatitis B
 - (D) *Pseudomonas aeruginosa*
70. Ozone depletion causes various impacts in the biosphere which are harmful, to reduce these, production of were reduced.
- (A) CH_4
 - (B) SO_2
 - (C) CFC
 - (D) NH_3
71. Global warming leads to various effects, which one of the following is *not* one of these ?
- (A) Rise in sea level
 - (B) Retreat of glaciers
 - (C) Frequent earthquakes
 - (D) More extreme summers

72. Ramsar Convention is related to

- (A) Conservation of wetlands
- (B) Areas rich in biodiversity
- (C) Areas affected by monsoon cyclones
- (D) Areas likely affected by desertification

73. Lakes in India, are being degraded mainly because of

- (A) Pollution
- (B) Over-exploitation
- (C) Eutrophication
- (D) Reclamation

74. Tehari dam is a centre of debate mainly because

- (A) It is on the confluence
- (B) It is situated in an earthquake sensitive zone
- (C) Of the rehabilitation problems of locals
- (D) It is in the religious region

75. Agenda-21 indicates

- (A) Planning for environmental protection in 21st century
- (B) The 21, conditions in the biodiversity conservation protocol
- (C) The number of countries which supported the protocol
- (D) The number of the resolution on UN list during UNCED

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ROUGH WORK