

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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| <p>1. What is the 'tectonic nature' of Lithosphere under Himalaya ?</p> <p>(A) Diversion</p> <p>(B) Conservative</p> <p>(C) Convergent</p> <p>(D) Rift</p> <p>2. The chloride makes up % of the salt in water.</p> <p>(A) 35</p> <p>(B) 45</p> <p>(C) 55</p> <p>(D) 65</p> | <p>3. Which one of the following clouds is composed mostly of ice ?</p> <p>(A) Cirrus</p> <p>(B) Altocumulus</p> <p>(C) Altostratus</p> <p>(D) Nimbostratus</p> <p>4. How much energy radiated by Sun reaches earth ?</p> <p>(A) About 80%</p> <p>(B) About 50%</p> <p>(C) About two-billionths</p> <p>(D) About one-hundredth</p> |
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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) CH₄
- (B) SO₂
- (C) CFC
- (D) NH₃

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