

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. Mixing ratio is a measure of :</p> <p>(A) Relative humidity</p> <p>(B) Precipitation</p> <p>(C) Wind speed</p> <p>(D) Radiations</p> | <p>3. Thunderstorms in weather systems are considered as phenomena occurring at :</p> <p>(A) micro scale</p> <p>(B) meso scale</p> <p>(C) synoptic scale</p> <p>(D) global scale</p> |
| <p>2. The characteristic length of pressure variations in vertical directions in atmosphere is approximately :</p> <p>(A) 2 km</p> <p>(B) 5 km</p> <p>(C) 7 km</p> <p>(D) 8 km</p> | <p>4. The speed of geostrophic wind for an air parcel of known density at a place depends on :</p> <p>(A) latitude only</p> <p>(B) latitude and pressure gradient</p> <p>(C) pressure gradient only</p> <p>(D) longitude and latitude</p> |
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[P.T.O.]

5. Hardness is commonly measured in terms of :
- (A) MgSO_4 equivalents
 - (B) MgCO_3 equivalents
 - (C) CaSO_4 equivalents
 - (D) CaCO_3 equivalents
6. In high performance liquid chromatography the most commonly used detector is :
- (A) Fluorescence detector
 - (B) Refractive index detector
 - (C) UV absorption detector
 - (D) Flame ionisation detector
7. Redox potential is measured in units of :
- (A) Watts
 - (B) Calories
 - (C) Millivolts
 - (D) Coulomb/meter
8. Pesticides can be estimated using :
- (A) Gel electrophoresis
 - (B) GC
 - (C) Flame photometry
 - (D) AAS
9. NO_x is a mixture of :
- (A) NO_2 and N_2O_5
 - (B) NO and N_2O_5
 - (C) NO and NO_2
 - (D) NO , NO_2 , N_2O_5
10. Upto what dissolved oxygen levels most fishes can live in water ?
- (A) 1 ppm
 - (B) 2 ppm
 - (C) 3 ppm
 - (D) 6 ppm

11. Which of the following ecosystems has upright ecological pyramid of biomass ?
- (A) Desert
 - (B) Pond
 - (C) Forest
 - (D) Soil
12. Which of the following represents pioneer colonizer of soil ?
- (A) Algae
 - (B) Lichens
 - (C) Fungi
 - (D) Protozoa
13. Inefficiency in transfer of energy in an ecosystem is represented by :
- (A) Energy pyramid
 - (B) Population pyramid
 - (C) Food web
 - (D) Succession
14. Which of the following techniques is used to monitor air microflora ?
- (A) Spread plate technique
 - (B) Pour plate technique
 - (C) Direct microscopic technique
 - (D) Agar impacting technique
15. Which of the following is a beneficial interaction ?
- (A) Antagonism
 - (B) Parasitism
 - (C) Competition
 - (D) Mutualism
16. Run-off in a catchment is likely to increase due to :
- (A) Deforestation
 - (B) Afforestation
 - (C) Reforestation
 - (D) Eco restoration

17. Western disturbances generally occur frequently during months in India.
- (A) November — April
 - (B) June — September
 - (C) April — June
 - (D) June — July
18. In remote sensing studies, the surface roughness or smoothness is decided by the criterion given by :
- (A) Planck
 - (B) Peak and Olives
 - (C) Bohr
 - (D) Raman
19. The radiometric resolution in case of LANDSAT/TM is :
- (A) 1/64
 - (B) 1/128
 - (C) 1/256
 - (D) 1/512
20. Atmospheric window is around :
- (A) 3 μm – 5 μm
 - (B) 2 μm – 7 μm
 - (C) 8 μm – 11 μm
 - (D) 20 μm – 25 μm
21. The energy in sun is produced as a result of :
- (A) nuclear fission
 - (B) nuclear fusion
 - (C) thermal convection
 - (D) chemical reaction
22. The country making maximum percentage use of nuclear energy is :
- (A) France
 - (B) Japan
 - (C) Brazil
 - (D) USA

23. The average solar insolation at the surface of earth is about :
- (A) 0.2 cal/inch²/minute
 - (B) 350 w/m²
 - (C) 750 w/m²
 - (D) 120 w/m²
24. Solar energy is *not* very popular as compared to conventional energy options because it :
- (A) is less affordable and less efficient
 - (B) creates thermal pollution
 - (C) is less socially acceptable
 - (D) is less accessible
25. For an ideal MHD power plant, the power output varies with the conductivity (σ) of the working fuel as proportional to :
- (A)
 - (B) σ^3
 - (C) $\sigma^{3/2}$
 - (D) σ
26. Each of two identical sources produce 80 dB of noise at a given location. What is the resultant noise level ?
- (A) 160 dB
 - (B) 120 dB
 - (C) 83 dB
 - (D) 86 dB
27. Bioaugmentation means :
- (A) stimulation of non-specific organisms
 - (B) stimulation of specific organisms
 - (C) inoculation of specific microbial consortium
 - (D) Inoculation of non-specific microbial consortium
28. Which of the following represents anoxygenic photo autotroph ?
- (A) Chromatium
 - (B) Nostoc
 - (C) Chlamydomonas
 - (D) Anabaena

29. Which of the following is a gaseous fuel ?
- (A) Ethanol
 - (B) Butanol
 - (C) Methane
 - (D) Methanol
30. In order to correctly assess the health impact due to aerosols, one has to measure :
- (A) SPM concentration
 - (B) $PM_{2.5}$ concentration
 - (C) structure of aerosols
 - (D) density of aerosols
31. "It shall be the duty of every citizen of India to protect and improve the natural environment" is mentioned in the following article of Indian Constitution :
- (A) 48 A
 - (B) 21
 - (C) 51 A
 - (D) 42
32. Environmental Audit is conducted on :
- (A) Regular basis
 - (B) Periodical basis
 - (C) Annual basis
 - (D) Bi-monthly basis
33. The radius for collection of data on environmental aspects for EIA of a proposed project site is :
- (A) 10 km
 - (B) 50 km
 - (C) 1 km
 - (D) 100 km
34. The environmental impacts of policy, plan or program are evaluated by :
- (A) Social impact assessment
 - (B) Draft environmental impact assessment
 - (C) Comprehensive environmental impact assessment
 - (D) Strategic environmental impact assessment

35. Title II of National Environmental Policy Act (NEPA) establishes :
- (A) Council on Environmental Quality (CEQ)
 - (B) National goal on Environmental Policy
 - (C) Protection of natural resources
 - (D) EIA and EIS
36. Separation of solids in waste by sedimentation is based on :
- (A) Volume
 - (B) Mass
 - (C) Size
 - (D) Morphology
37. Agriculture residues are rich in :
- (A) Proteins
 - (B) Lipids
 - (C) Cellulose
 - (D) Fatty acids
38. Compost is used as soil conditioner because :
- (A) it decreases pH of soil
 - (B) it increases nitrogen content
 - (C) it depletes oxygen of soil
 - (D) it increases water retention capacity of soil
39. Biomedical waste is hazardous due to the presence of :
- (A) Cellulosic matter
 - (B) Waste food
 - (C) Pathogens
 - (D) Fruit waste
40. Kyoto Protocol would expire in the year :
- (A) 2011
 - (B) 2012
 - (C) 2014
 - (D) 2015

41. In terms Z-statistics the mean and standard deviation of normal distribution are
- (A)
(B)
(C)
(D)
42. The level of significance in multiple regression models is usually taken as :
- (A) 5%
(B) 20%
(C) 2%
(D) 10%
43. Which of the following represents sample statistics ?
- (A) μ
(B)
(C)
(D) σ^2
44. If the data regarding occurrence of a particular disease in different zones around a factory are tabulated in a contingency table, what is the suitable technique to establish relationship between occurrence of that disease and location with respect to factory :
- (A) *t*-test
(B) Correlation
(C) Chi-square test
(D) F-test
45. The null hypothesis pertaining to all the regression coefficients simultaneously is tested using
- (A) Z-statistics
(B) F-statistics
(C) Chi-square statistics
(D) *t*-statistics

46. Eutrophication represents :
- (A) Algal blooms
 - (B) Metals in water
 - (C) Fungal growth
 - (D) Bacterial growth
47. In our country nearly% of water is used in the agricultural sector much of which is very wasteful.
- (A) 70
 - (B) 60
 - (C) 85
 - (D) 95
48. The Montreal Protocol signed in 1987 deals with the control of :
- (A) Trading in rare species
 - (B) Ozone depleting substances
 - (C) Emission from industries
 - (D) Land degradation
49. The present installed capacity of electricity in our country is about of the global energy generation.
- (A) 10%
 - (B) 20%
 - (C) 15%
 - (D) 3%
50. The convention for protection and conservation of wetlands is :
- (A) Montreal Protocol
 - (B) Ramsar Convention
 - (C) Kites Convention
 - (D) Convention on Biodiversity

ROUGH WORK