Previous Year Question Paper

of

SET MH (MAHARASHTRA)

ENVIRONMENTAL SCIENCES

Question Paper – II

State Eligibility Test

2011, November

(Original Question Paper with Answer Key)

State Eligibility Test

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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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1. Synoptic scale in meteorology generally refers to weather systems having spatial extents of :

   (A) 10 to 100 km

   (B) > 10,000 km

   (C) ~ 1000 km

   (D) 100 to 200 km

2. Maximum concentration of ozone exists in :

   (A) stratosphere

   (B) troposphere

   (C) mesophere

   (D) thermosphere

3. The first Indian biosphere reserve was :

   (A) Sundarbans

   (B) Nilgiri

   (C) Nanda Devi

   (D) Kaziranga

4. In a closed ecosystem :

   (A) Energy is not allowed to flow across its boundary

   (B) Energy and matter are not allowed to flow across its the boundary

   (C) Energy is not allowed to flow but matter is allowed to flow across its boundary

   (D) Energy is allowed to flow but matter in not allowed to flow across its boundary

5. Among the following, identify the coagulant :

   (A) $Fe_2(SO_4)_3$

   (B) CaO

   (C) Alum

   (D) Polyelectrolyte

[P.T.O.

6. Which technique is a non-destructive technique for analysing the environmental samples ?

   (A) XRF

   (B) AAS

   (C) GC(FID)

   (D) ICP-AES

7. When lead levels in blood increase beyond 0.8 ppm, the system to which disease is noticed first ?

   (A) Azoospermia

   (B) Dermatitis

   (C) Anaemia

   (D) Mottled teeth

8. The major oxidant found in polluted atmosphere during the day is :

   (A) NO_2

   (B) PAN

   (C) O_3

   (D) NO

9. The residence time of Methane (CH_4) is approximately :

   (A) 4 days

   (B) 10 days

   (C) 10 months

   (D) 3.5 years

10. COD is always :

    (A) equal to BOD

    (B) $\geq$ BOD

    (C) < BOD

    (D) 1.8 times of BOD

11. Which of the following is a commercial source of resin ?

    (A) Rubber

    (B) Babool

    (C) Hirda

    (D) Subabool

12. Which of the following is a beneficial interaction ?

    (A) Antagonism

    (B) Parasitism

    (C) Competition

    (D) Mutualism

13. If population of a species has rapidly reduced in the recent past, it is called...................species :

    (A) endangered

    (B) Threatened

    (C) Extinct

    (D) Rare

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14. Which of the following organisms is nitrogen fixer ?

   (A) Azotobacter

   (B) Rhizobium

   (C) Anabaena

   (D) Azosplrillum

15. Which of the following is odd for plant growth promotion by Azotobacter chroococcum ?

   (A) Plant growth hormones

   (B) Biocontrol

   (C) Nitrogen fixation

   (D) Parasitism

16. Earthquakes are associated with body and surface waves which a monitoring station receives in the following order :

   (A) Rayleigh wave, P-wave, S-wave

   (B) S-wave, P-wave, love wave

   (C) P-wave, S-wave, Rayleigh wave

   (D) Love wave, Rayleigh wave, P-wave

17. Sea water contains many dissolved compounds in which most predominant basic element is :

   (A) Potassium

   (B) Calcium

   (C) Sodium

   (D) Magnesium

18. Maximum intensity of terrestrial radiations emitted by earth is around wavelength :

   (A) ~ 5.4 μm

   (B) ~ 18 μm

   (C) ~ 13.6 μm

   (D) ~ 9.6 μm

19. Marine pollution is mostly caused in the open ocean due to :

   (A) Oil spills

   (B) River discharge

   (C) Coastal industries

   (D) Municipal waste water discharge

20. Avalanches are more common in India over :

    (A) Western Ghats

    (B) Himachal Pradesh

    (C) Eastern Ghats

    (D) Khasi and Jantia Hills

21. The optimum range of wind speed for wind power generation is :

    (A) ~ 4 to 12 m/sec

    (B) ~ 15 to 25 m/sec

    (C) ~ 1 to 5 m/sec

    (D) ~ 30 to 35 m/sec

22. In a PV cell electron hole pairs are created mainly in :

    (A) *p*-region

    (B) *n*-region

    (C) *p-n* junction

    (D) both *p* and *n* regions

23. In an ideal MHD power plant the output electrical power varies with magnetic field B as proportional to :

    (A) B

    (B) B^2

    (C) $B^{3/2}$

    (D) $B^{1/2}$

24. Hydroelectric power generation accounts for nearly...................% energy generated in India :

    (A) 5%

    (B) 15%

    (C) 30%

    (D) 40%

25. Biofuels are now being increasingly used as these are :

    (A) less polluting and renewable

    (B) more affordable

    (C) having more energy content

    (D) more water efficient

26. Which of the following constitute floatable solids ?

    (A) Proteins

    (B) Polysaccharides

    (C) Lipids

    (D) Nucleic acid

27. Which of the following scientists developed enrichment culture technique ?

    (A) Winogradsky

    (B) Alexander

    (C) Robert Koch

    (D) Beijerinck

28. Which of the following is indicator of microbial quality of water ?

    (A) *E. coli*

    (B) Azotobacter

    (C) Rhizobium

    (D) Bacillus

29. Recyling of waste means :

    (A) Reuse of waste

    (B) Recovery of valuable products

    (C) Reduction of waste

    (D) Converting waste into valuable products

30. Classic or criteria pollutants of air include :

    (A) SPM, CO, NO_2, SO_2

    (B) CO, HC, NO_2, PAN

    (C) NO_2, O_3

    (D) SPM, Benzene, O_3, PAN

31. In which component of EIA the proposed mitigation measures and monitoring scheme are cited ?

    (A) Environmental setting

    (B) Environmental management plan

    (C) Prediction of impacts

    (D) Identification of impacts

32. Title II of National Environmental Policy Act (NEPA) establishes :

   (A) National goal of Environmental Policy

   (B) Council for Environmental Quality

   (C) Protection of Natural Resources

   (D) EIA and EIS

33. An environmental inventory for EIA is :

   (A) Description of affected environment

   (B) Description of total environment

   (C) Description of partial environment

   (D) Description of a specific environment

34. The impact identification process in EIA brings together :

   (A) Baseline information and project characteristics

   (B) Impacts and project characteristics

   (C) Impacts and baseline information

   (D) Cost and project characteristics

35. The environmental impacts of policy, plan or program are evaluated by :

   (A) Comprehensive Environmental Impact Assessment

   (B) Strategic Environmental Impact Assessment

   (C) Social Impact Assessment

   (D) Draft Environmental Impact Assessment

36. Wildlife Protection Act, 1972 was amended in the year :

   (A) 1991

   (B) 1995

   (C) 1990

   (D) 1985

37. Which of the following solids are filterable ?

   (A) Mixed liquor suspended solids (MLSS)

   (B) Dissolved solids (DS)

   (C) Total solids (TS)

   (D) Sludge

38. Biomedical waste is hazardous due to the presence of :

   (A) Cellulosic matter

   (B) Waste food

   (C) Pathogens

   (D) Fruit wastes

39. Under Public Insurance Liability Act, the maximum amount which could be paid to the victims by the concerned company/industry is equal to :

   (A) Rs 1 lac

   (B) Rs 5 lac

   (C) Paid up equity capital of the company/industry

   (D) 50% of paid up equity capital of the company/industry

40. Which of the following waste treatment methods is an example of Recycling ?

   (A) Stabilization of waste

   (B) Converting waste into useful biomass

   (C) Burning waste

   (D) Lagooning waste

41. The null hypothesis pertaining to all the regression coefficients simultaneously is tested using :

   (A) t-statistic

   (B) f-statistic

   (C) Chi-square statistic

   (D) z-statistic

42. The geometric mean of the data series 2, 3, 6, 36 is................. .

   (A) ~ 12

   (B) 6

   (C) 18

   (D) 10.5

43. Which of the following represents population parameters ?

   (A) $\bar{x}$

   (B) s

   (C) μ

   (D) s^2

44. Which is the suitable technique to establish the association between human health status in a village and quality of drinking water ?

   (A) Chi-square test

   (B) Correlation analysis

   (C) K-S test

   (D) t-test

45. The level of significance in multiple regression models is usually taken as............... .

    (A) 5%

    (B) 20%

    (C) 2%

    (D) 10%

46. Annex I countries account for nearly..............% of global CO_2 emissions :

    (A) 85

    (B) 65

    (C) 55

    (D) 45

47. The cause of eutrophication is :

    (A) Discharge of nutrient rich effluent

    (B) Discharge of metal rich effluent

    (C) Discharge of Organic matter rich effluent

    (D) Discharge water from power plants

48. The present installed capacity of electricity in our country is about :

    (A) 10% of global capacity

    (B) 15% of global capacity

    (C) 3% of global capacity

    (D) 12% of global capacity

49. In the recently held Cancun Summit the UN member states committed themselves to restrict the rise of global surface temperature to a maximum of ....by 2050 :

    (A) 1°C

    (B) 2°C

    (C) 3°C

    (D) 4°C

50. The Montreal protocol on substances that deplete the ozone layer was approved in :

    (A) 1980

    (B) 1990

    (C) 1987

    (D) 1975

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