2013 December UGC NET Solved Question Paper in Environmental Sciences, Paper II

1. Mesoscale Meteorological Phenomena occur over areas of horizontal distance in the range (km)

(A) 100 – 200 km

(B) 1 – 100 km

(C) 10 – 50 km

(D) 1 – 10 km

Answer: (B)

2. The Indian monsoon period is from

(A) October to November

(B) December to February

(C) June to September

(D) March to May

Answer: (C)

3. Which of the following is not a reactive oxygen species?

(A) Hydrogen peroxide

(B) Hydroxyl ion

(C) Singlet oxygen

(D) Superoxide anion

Answer: (B)

4. If air quality standard for carbon monoxide is 9.0 ppmV, the percentage as in mg/m^3 at 1 atm. at 25 °C is

(A) 10.3 mg/m^3

(B) 15.2 mg/m^3

(C) 20.0 mg/m^3

(D) 5.6 mg/m^3

Answer: (A)

5. Azaridine, Ethylene dibromide, Bis(chloromethyl) ether are

(A) Alkylating agents

(B) Hydrocarbons

(C) Hydrazines

(D) Aromatic amines

Answer: (A)

6. Normality of 0.25 M phosphoric acid is

(A) 0.25

(B) 0.50

(C) 0.75

(D) 2.50

Answer: (C)

7. Match List – I with List – II and choose the correct answer from the codes given below:

List – I List – II

(Air Pollutants)	(Sources / Activities)
a. Carbon monoxide	1. Coal burning
b. Nitrogen oxide	2. Cigarette Smoking
c. Sulphur dioxide	3. Chemical reaction with VOCs
d. Ozone	4. Power and Industrial Plant

Codes:

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

Answer: (A)

8. The gaseous material which is used for the synthesis of Methyl isocyanate is

(A) Chloranil

(B) Sevin

(C) Phosgene

(D) Chlorine

Answer: (C)

9. During the determination of COD, sulphanilic acid is added, because

(A) It maintains the acidic nature

(B) It precipitates the mercury ions

(C) It oxidises nitrites to nitrates

(D) It reacts with ferrous ammonium sulphate

Answer: (C)

10. Which year was declared as International Year of Biodiversity?

(A) 2002

(B) 2010

(C) 2020

(D) 1972

Answer: (B)

11. The forest biome characterised by 3-4 tree species/km2 is

(A) Tropical

(B) Temperate

(C) Boreal

(D) Taiga

Answer: (B)

12. Which of the following is a type of biodiversity extinction caused primarily due to anthropogenic activities?

(A) Carboniferous rain forestcollapse

(B) Permian – Triassic extinction

(C) Cretaceous paleogene extinction

(D) Holocene extinction

Answer: (D)

13. The chemical used in a fermenter with molasses as a substrate is

(A) Diammonium sulphate

(B) Diammonium phosphate

(C) Diammonium nitrate

(D) Diammonium chloride

Answer: (B)

14. Which of the following is an example of lotic ecosystem?

(A) Stream ecosystem

(B) Pond ecosystem

(C) Bog ecosystem

(D) Wetland ecosystem

Answer: (A)

15. Which pyramid is always straight?

(A) Pyramid of biomass

(B) Pyramid of number

(C) Pyramid of energy

(D) Pyramid of number and biomass

Answer: (C)

16. Which of the following type of materials present in a landslide suggest that the movement was rotational?

(A) Rockflow, Debris flow, Earthflow

(B) Rock slump, Debris slump, Earth slump

(C) Rockfall, Debris fall, Earth fall

(D) Rock topple, Debris topple, Earth topple

Answer: (B)

17. Which of the following parameters is not a good indicator of contamination in ground water?

(A) BOD

(B) Nitrates

(C) Silica

(D) Chlorides

Answer: (C)

18. On an aerial photograph, the distance between the principal point and the conjugate principal point is called

(A) Relief

(B) Tilt

(C) Photo-base

(D) Focal length

Answer: (C)

19. An equatorial west to east remote sensing satellite orbiting the earth at an altitude of 36,000 km is called

(A) Sun-synchronous satellite

(B) Geostationary satellite

(C) Space shuttle

(D) Stereo imager

Answer: (B)

20. Which state of Cr (Chromium) is most toxic?

(A) Cr^{4+}

(B) Cr^{3+}

(C) Cr^{5+}

(D) Cr^{6+}

Answer: (D)

21. Assertion (A): Groundwater may get seriously contaminated in coastal areas.

Reason (R): Groundwater overdrafts near coastal areas can contaminate groundwater supplies by allowing salt water to intrude into freshwater aquifers.

Codes:

(A) Both (A) and (R) are true and (R) is the correct explanation of (A).

(B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true and (R) is false.

(D) (A) is false and (R) is true.

Answer: (A)

22. Assertion (A): Tropical and subtropical seas are most suitable for OTEC.

Reason (R): There is a certain minimum vertical gradient (> 25 °C/km) required for OTEC to become feasible.

Codes:

(A) Both (A) and (R) are true and (R) is the correct explanation.

(B) Both (A) and (R) are true, but (R) is not the correct explanation.

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Answer: (A)

23. On burning a certain amount of fuel a total of 500 million tonnes of CO_2 is released to the atmosphere. If the entire amount of CO_2 remains in the atmosphere, what will be the rise in the concentration of CO_2 in ppm?

(A) ~ 0.236 ppm

(B) ~ 0.128 ppm

(C) ~ 2.312 ppm

(D) ~ 1.216 ppm

Answer: (A)

24. A thermal power station has a heat rate of 12 mJ/kWh. Its thermal efficiency is

(A) 30%

(B) 36%

(C) 40%

(D) 25%

Answer: (A)

25. Assume that world coal production is 6.1 billion tons per year and estimated total recoverable resources of coal are 1.1 trillion tons. How long it would take to use up those reserves at current rate of production?

(A) ~ 180 years

(B) ~ 150 years

(C) ~ 120 years

(D) ~ 90 years

Answer: (A)

26. In a salt gradient solar pond, the salinity generally varies from top to bottom of the pond as

(A) < 5% to ~ 20%

(B) ~ 10% to ~ 30%

(C) ~ 20% to ~ 35%

(D) ~ 20% to ~ 40%

Answer: (A)

27. Which region among the following is not Atmospheric Brown Cloud (ABC) hotspot?

(A) East-Asia

(B) South Africa

(C) Amazon Basin in South America

(D) Australia

Answer: (D)

28. Prolonged exposure to high levels of noise causes

(i) Hearing loss

(ii) Constriction of blood vessels

(iii) Gastric ulcers

(iv) Toxicity

Identify the correct answer:

(A) (i), (ii) and (iv) only

(B) (i), (iii) and (iv) only

(C) (i), (ii) and (iii) only

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

Answer: (C)

29. Azolla pinnata is a

(A) Blue green algae

(B) Green algae

(C) Red algae

(D) Fern

Answer: (D)

30. Assertion (A): Eruption of the volcano Mt. Pinatobu in 1991 spewed sulphur clouds into the upper reaches of the atmosphere. The following three years were cooler.

Reason (R): Sulphate aerosols reflect sunlight away from the Earth.

Codes:

(A) Both (A) and (R) are correct and (R) is correct explanation of (A).

(B) Both (A) and (R) are correct and (R) is not correct explanation of (A).

(C) (A) is correct (R) is incorrect.

(D) Both (A) and (R) are incorrect.

Answer: (A)

31. Photolysis of NO_2 occurs due to radiations of wavelength

(A) < 600 nm

(B) < 550 nm

(C) < 480 nm

(D) < 390 nm

Answer: (D)

32. The efficiency of removing SO_2 from the flue gas by limestone in wet scrubbers can be as high as

(A) 30%

(B) 50%

(C) 70%

(D) 90%

Answer: (D)

33. The depth of the oxidation ponds is typically

(A) 1 – 2 m

(B) 2 – 5 m

(C) 5 – 10 m

(D) 10 – 20 m

Answer: (A)

34. In EIA the baseline data describes

(A) The environmental consequences by mapping

(B) Existing environmental status of the identified study area

(C) Assessment of risk on the basis of proposal

(D) Demographic and socioeconomic data

Answer: (B)

35. Which one of the following does not belong to EIA methods used for assessing the impacts of developmental activities on the environment?

(A) Checklist

(B) Adhoc

(C) Network

(D) Flexible

Answer: (D)

36. The EIA report of a hydropower project would be valid upto how many years after the environmental clearance of the project?

(A) 5 years

(B) 6 years

(C) 30 years

(D) 10 years

Answer: (D)

37. If in the screening stage of EIA, the impact level of a developmental project is not discernible, then what step should be adopted?

(A) Scoping stage is to be followed.

(B) A rapid EIA study is to be conducted.

(C) Detail EIA study is to be conducted.

(D) The project should be given Environmental Clearance.

Answer: (B)

38. The Committee which reviews the Environmental Impact Assessment and Environmental Management plan reports of a developmental project in Ministry of Environment and Forest is called

(A) Project Assessment Committee

(B) Project Appraisal Committee

(C) Project Evaluation Committee

(D) Project Estimate Committee

Answer: (B)

39. In a typical municipal solid waste, least percentage of Ash is found in

(A) Textiles

(B) Plastic

(C) Leather

(D) Rubber

Answer: (A)

40. Highly inflammable liquid/chemicals have flash point

(A) Lower than 23 °C

(B) Between 23 and 26 °C

(C) Between 27 and 31 °C

(D) Between 32 and 40 °C

Answer: (A)

41. Which one of the following does not contribute to climate change?

(A) NO

(B) O_3

(C) SF_6

(D) HFCs

Answer: (A)

42. A population (X) in an ecosystem follows logistic growth curve. If the carrying capacity of the system is K, the growth realisation factor is

(A) (K – X) / X

(B) (K – X) / K

(C) (K – X) / K^2

(D) (K – X)

Answer: (B)

43. Which one of the following conditions would indicate that the dataset is not bell shaped?

(A) The mean is much smaller than median

(B) The range is equal to five times the standard deviation.

(C) The range is larger than interquartile range.

(D) The range is twice the standard deviation.

Answer: (A)

44. For degrees of freedom (df) > 1, the mean (μ) of the t-distribution is

(A) Zero

(B) 1

(C) Depends on df

(D) 2

Answer: (A)

45. Which of the following is an eigen value of the matrix

$$\begin{vmatrix} 3 & -1 \\ 4 & -2 \end{vmatrix}$$?

(A) 2

(B) 0

(C) 1

(D) 3

Answer: (A)

46. Suppose a 70 kg person drinks 2L of water every day for 70 years with a chloroform concentration of 0.10 mg/L (the drinking water standard), upper bound cancer risk for these individual will be

(A) 17 in 1 million

(B) 25 in 1 million

(C) 37 in 1 million

(D) 5 in 1 million

Answer: (A)

47. What is Eco mark?

(A) Label given to recycled products

(B) Label given to an environment friendly products

(C) Land mark indicating the boundaries of bio-parks

(D) Label given to non-recyclable products

Answer: (B)

48. An important source of Arsenic in Municipal Solid Water (MSW) is

(A) Pigments in plastics

(B) Rubber products

(C) Batteries

(D) Household pesticides

Answer: (D)

49. Which of the following is not a non-formal Environment Education and Awareness Programme?

(A) Global Learning and Observations to Benefit the Environment (GLOBE).

(B) National Environment Awareness Campaign (NEAC).

(C) Eco-clubs

(D) Environmental Education in School System

Answer: (D)

50. REDD stands for_

(A) Recurring Emission from Deforestation and Forest Degradation

(B) Reducing Environmental Degradation and Forest Degradation

(C) Reducing Emissions from Deforestation and Forest Degradation

(D) Reducing Emissions from Degradable Deposits of Wastes

Answer: (C)