| D-8909 |

Test Booklet No.

Time : 1 ¹/₄ hours]

PAPER-II

[Maximum Marks : **100**

ENVIRONMENTAL SCIENCE

Number of Pages in this Booklet : **8**   Number of Questions in this Booklet : **50**

ENVIRONMENTAL SCIENCE
Paper – II

Note : This paper contains **fifty (50)** objective type questions, each question carrying **two (2)** marks. Attempt **all** the questions.

1. The use of anthropoid hazard chemicals like DDT causes reduction in fish population because the chemical mimics the effect of

    (A) Luteinizing hormone   (B) Testosterone

    (C) Estrogen   (D) All of the above

2. The ionizing radiation, which affects the activities of most of the enzymes is due to

    (A) Photoemission of electron

    (B) Interaction of α-particles, β-and γ-rays with enzymes

    (C) Interaction of electron with body.

    (D) Interaction of radiation with tissues.

3. SDS-PAGE of tissue proteins under denaturation determines the

    (A) Hydrogen bond breakage   (B) Sulfide bridge breakage

    (C) Subunits of protein   (D) None of the above

4. Intake of lead may primarily cause the damage of

    (A) Brain   (B) Lung

    (C) Liver   (D) Kidney

5. Parallelism among the standard curves can be determined by one of the following.

    (A) ANOVA   (B) Student's-t test

    (C) Chi square   (D) ANCOVA

6. Liquid ammonia can be used in refrigeration because of its

    (A) High basicity   (B) High dipole moment

    (C) High heat of vaporization   (D) Non-toxic nature

7. The pair of molecules forming strongest intermolecular hydrogen bonds are

    (A) H_2O and H_2 (B) HCOOH and CH_3COOH

    (C) CH_3COCH_3 and $CHCl_3$ (D) SiH_4 and SiF_6

8. Which of these requires quantum nature of light for their explanation ?

    (A) Diffraction   (B) Polarisation

    (C) Black body spectrum   (D) Interference

9. The mass of 1 mole of electron is equal to
   (A) $9.1094 \times 6.16 \times 10^{-28}$ g
   (B) $9.1094 \times 10^{-31} \times 6.023 \times 10^{23}$ kg
   (C) $(9.1094 \times 10^{-31}) / 6.023 \times 10^{23}$ kg
   (D) $(6.023 \times 10^{23}) / 6.1094 \times 10^{-28}$ gm

10. Which set of stoichiometric coefficient correctly balance the equation
    a. H_2O_2 + b. $KMnO_4$ + c. $H_2SO_4 \rightarrow$ d. K_2SO_4 + e. $Mn\,SO_4$ + f. H_2O + g. O_2

	a	b	c	d	e	f	g
(A)	1	1	1	1	1	1	1
(B)	1	2	3	1	2	4	3
(C)	2	5	3	2	1	8	5
(D)	5	2	3	1	2	8	5

11. Which of the transmutation does not take place by α-decay ?
    (A) $^{238}U_{92} \longrightarrow {}^{234}Th_{90}$
    (B) $^{213}Bi_{83} \longrightarrow {}^{213}Po_{84}$
    (C) $^{226}Ra_{88} \longrightarrow {}^{222}Rn_{86}$
    (D) $^{227}Ac_{89} \longrightarrow {}^{223}Fr_{87}$

12. Which radioactive element is considered under Indoor pollutants category ?
    (A) O –16
    (B) N –13
    (C) Carbon 14
    (D) Radon

13. Industries generating hazardous waste are classified as
    (A) Brown
    (B) Green
    (C) Yellow
    (D) Red

14. One of the following methods for disposal of municipal solid waste known to be scientific is
    (A) Open land disposal
    (B) Incerination
    (C) Landfill method
    (D) Sanitary landfill method

15. One of the following is not an In situ conservation for biological resources.
    (A) Biosphere reserve
    (B) National Parks
    (C) Protected areas
    (D) Breeding under confined areas

16. Solar ponds are used for
    (A) Salt production
    (B) Aquaculture
    (C) Power generation
    (D) All of the above

17. Biodiesel is produced in India presently from
(A) <u>Calotropis</u> sp
(B) <u>Catharanthus</u> sp
(C) <u>Jatropha</u> sp
(D) <u>Delonix</u> sp

18. Ozone depletion is caused by the increase in the level of
(A) Water vapour
(B) Chlorofluro carbon
(C) Oxygen
(D) Carbon monoxide

19. Thermal power generation in India is carried out by burning
(A) Natural gas
(B) Coal
(C) Oil
(D) All of the above

20. Biogas production is the outcome of
(A) Methanogenesis
(B) Pyrolysis
(C) Methanogenesis and Gasification
(D) Gasification

21. Mauna Loa, in Hawaii is famous for
(A) Botanical Garden
(B) Monitoring sea level rise since 1950
(C) Biggest collection of mammals fossils
(D) Continuous monitoring of atmospheric CO_2 since 1957.

22. To generate environmental awareness Paryavaran Vahini Scheme was launched in
(A) 1998
(B) 1968
(C) 1992
(D) 1994

23. General Circulation Model (GCM's) are used to
(A) predict climate
(B) predict cyclones
(C) study ocean currents
(D) study temperature on wind

24. Among the following which country has lowest per capita green house gas emission ?
(A) France
(B) India
(C) China
(D) Mexico

25. Water (Prevention & Control of Pollution) Act 1974, industries are allowed to release waste in inland water having BOD level
(A) 100 mg/l
(B) 30 mg/l
(C) 150 mg/l
(D) 80 mg/l

26. Richael Carsson in her book Silent Spring has raised concern on
(A) Economical & social impacts
(B) Deforestation
(C) Climate change
(D) Impacts of agro-chemicals on ecological functions

27. The term oligotrophic refers to

(A) Higher nutrients in water

(B) High aquatic productivity

(C) Low nutrients and low productivity

(D) Algal blooms

28. Following initiative under International efforts made to have household eco-friendly refrigerators :

(A) Kyoto Protocol

(B) Basal Convention

(C) Montreal Protocol

(D) CITES

29. The 'mean' that stands for relative importance of different items in a data set is

(A) Weighted mean

(B) Harmonic mean

(C) Arithmetic mean

(D) Geometric mean

30. In symmetrical distribution pattern

(A) Median, Mean and Mode coincide

(B) Mean & Median coincide

(C) Mean & Mode coincide

(D) Mode & Median coincide

31. Which statistical device helps in analysing the co-variation of two or more variables ?

(A) Regression

(B) Correlation

(C) Standard deviation

(D) Mean of the variables

32. Stoke's Law of Settling Velocity is represented by

(A) $V \propto d$

(B) $V \propto \frac{1}{a} n$

(C) $V = \frac{1}{d}$

(D) $V = cd$

33. Correct arrangement in order of decreasing soil particle size

(A) Sand, clay, silt

(B) Silt, sand, clay

(C) Sand, silt, clay

(D) Clay, silt, sand

34. Comparing continental and oceanic crust

(A) the chemical composition of crust does not vary.

(B) the Fe content in continental crust is more than that of oceanic crust.

(C) the Si and Al content in continental crust is more than that of oceanic crust.

(D) the Na, Ca, Al content in oceanic crust is more than that of continental crust.

35. The size distribution of particles in soil and sediments generally follow

(A) binomial distribution

(B) normal distribution

(C) linear distribution

(D) log-normal distribution

36. Maximum density of water is at
   (A) 0 °C   (B) 100 °C
   (C) – 4 °C   (D) 4 °C

37. The geochemical weathering process can be viewed as
   (A) Clay minerals + $CO_2 \rightleftharpoons$ Quartz + Al_2O_3

   (B) Primary silicate + $CO_2 + H_2O \rightleftharpoons$ clay minerals + cations + $HCO_3^- + H_4SiO_4 + H^+$

   (C) Primary silicate + $H_2O \rightleftharpoons Al_2O_3 + SiO_2 + CaO + H^+$

   (D) Clay minerals + $H_2O \rightleftharpoons Fe_2O_3 + Al_2O_3 + SiO_2 + CaO$

38. Which group of minerals represent
   (A) Polymorphic transformation
   (B) Non-substitutional representation
   (C) Isomorphic substitution
   (D) Unmixed presence of different non silicates

39. Garnet is a metamorphic product of
   (A) Feldspar   (B) Quartzite
   (C) Mica   (D) Serpentine

40. Formation of marble can be represented by
   (A) $CaSiO_3 \rightleftharpoons Ca^{+2} + SiO_3^{-2}$ (B) $CaO + CO_2 \rightleftharpoons CaCO_3$
   (C) $CaCO_3 \rightleftharpoons CaO + CO_2$ (D) $CaCO_3 + SiO_2 \rightleftharpoons CaSiO_3 + CO_2$

41. For the precipitation of $CaCO_3$ from water

   $Ca^{+2} + CO_3^{-2} - CaCO_3$

   the equilibrium constant K is $10^{-8.3}$. This indicates that
   (A) Ca^{+2} & CO_3^{-2} concentration are equal in water

   (B) $m_{CO_3^{-2}} >> m_{Ca^{+2}}$

   (C) $m_{Ca^{+2}} < m_{Co_3^{-2}}$

   (D) $m_{Ca^{+2}} = \dfrac{1}{m_{Co_3^{-2}}}$

42. How many sites as potential areas for biosphere reserves have been identified by the National MAB Committee for the Department of Environment ?
   (A) 13   (B) 23
   (C) 33   (D) 43

43. Which one of the following is not a permitting cryoprotectant ?

(A) Glycerol (B) DMSO

(C) Sucrose (D) 1, 2 – propanediol

44. The aggregation of all eco systems on the earth is referred to as

(A) Atmosphere (B) Ecosphere

(C) Stratosphere (D) Ionosphere

45. Which one of the following is not a biofertilizer ?

(A) Aquatic ferns

(B) Blue-green algae

(C) Phosphate-Solubilising micro-organisms

(D) Vermicompost

46. Who first used and defined "Ecology" in 1866 ?

(A) H. Reiter (B) Haeckel

(C) Charles Elton (D) Odum

47. CITES has following schedules in order of priority to protect animals and plants from trade :

(A) Schedule I, II, III (B) Schedule I, I, III

(C) Schedule III, III, I (D) Schedule II, I, III

48. Methamoglobinemia is actually caused by water pollution containing

(A) NO_2 (B) NO_3^-

(C) NH_4^+ (D) NO_2^-

49. Environmental Impact Assessment is mandatory for certain developmental project under one of the following legislation :

(A) The Factories' Act (B) Forest Act

(C) Environment (Protection) Act (D) Air (Pollution and Control) Act

50. Which one of the following air pollution control device has highest efficiency in controlling dust ?

(A) Wet Scruber (B) Electrostatic precipitator

(C) Venturi Scruber (D) Cyclonic spray scruber

_____

Space for Rough Work