Environmental Chemistry

1. Identify the incorrect statement from the following: **[AIEEE-2011]**

   (1) Ozone absorbs infrared radiation

   (2) Oxides of nitrogen in the atmosphere can cause the depletion of ozone layer

   (3) Ozone absorbs the intense ultraviolet radiation of the sun

   (4) Depletion of ozone layer is because of its chemical reactions with chlorofluoro alkanes

2. The gas leaked from a storage tank of the Union Carbide plant in Bhopal gas tragedy was **[JEE (Main)-2013]**

   (1) Methylisocyanate (2) Methylamine

   (3) Ammonia (4) Phosgene

3. The concentration of fluoride, lead, nitrate and iron in a water sample from an underground lake was found to be 1000 ppb, 40 ppb, 100 ppm and 0.2 ppm, respectively. This water is unsuitable for drinking due to high concentration of **[JEE (Main)-2016]**

   (1) Lead (2) Nitrate

   (3) Iron (4) Fluoride

4. A water sample has ppm level concentration of following anions

   F^- = 10; SO_4^{2-} = 100; NO_3^- = 50

   The anion/anions that make/makes the water sample unsuitable for drinking is/are **[JEE (Main)-2017]**

   (1) Only F^- (2) Only SO_4^{2-}

   (3) Only NO_3^- (4) Both SO_4^{2-} and NO_3^-

5. The recommended concentration of fluoride ion in drinking water is up to 1 ppm as fluoride ion is required to make teeth enamel harder by converting $[3Ca_3(PO_4)_2.Ca(OH)_2]$ to **[JEE (Main)-2018]**

   (1) $[CaF_2]$

   (2) $[3(CaF_2).Ca(OH)_2]$

   (3) $[3Ca_3(PO_4)_2.CaF_2]$

   (4) $[3\{Ca(OH)_2\}.CaF_2]$

6. Which of the following conditions in drinking water causes methemoglobinemia? **[JEE (Main)-2019]**

   (1) > 50 ppm of nitrate

   (2) > 50 ppm of lead

   (3) > 50 ppm of chloride

   (4) > 100 ppm of sulphate

7. Water filled in two glasses A and B have BOD values of 10 and 20, respectively. The correct statement regarding them, is **[JEE (Main)-2019]**

   (1) Both A and B are suitable for drinking

   (2) A is suitable for drinking, whereas B is not

   (3) B is more polluted than A

   (4) A is more polluted than B

8. The reaction that is NOT involved in the ozone layer depletion mechanism in the stratosphere is **[JEE (Main)-2019]**

   (1) $HOCl(g) \xrightarrow{h\nu} \dot{O}H(g) + \dot{C}l(g)$

   (2) $CH_4 + 2O_3 \longrightarrow 3CH_2 = O + 2H_2O$

   (3) $Cl\dot{O}(g) + O(g) \longrightarrow \dot{C}l(g) + O_2(g)$

   (4) $CF_2Cl_2(g) \xrightarrow{uv} \dot{C}l(g) + \dot{C}F_2Cl(g)$

9. The concentration of dissolved oxygen (DO) in cold water can go upto: **[JEE (Main)-2019]**

   (1) 14 ppm (2) 16 ppm

   (3) 10 ppm (4) 8 ppm

10. Peroxyacetyl nitrate (PAN), an eye irritant is produced by **[JEE (Main)-2019]**

    (1) Classical smog (2) Acid rain

    (3) Organic waste (4) Photochemical smog

11. Taj Mahal is being slowly disfigured and discoloured. This is primarily due to **[JEE (Main)-2019]**

    (1) Acid rain (2) Water pollution

    (3) Global warming (4) Soil pollution

12. The higher concentration of which gas in air can cause stiffness of flower buds? **[JEE (Main)-2019]**

(1) SO_2 (2) CO

(3) CO_2 (4) NO_2

13. Water samples with BOD values of 4 ppm and 18 ppm, respectively, are **[JEE (Main)-2019]**

(1) Clean and Highly polluted

(2) Clean and Clean

(3) Highly polluted and Clean

(4) Highly polluted and Highly polluted

14. The molecule that has minimum/no role in the formation of photochemical smog, is **[JEE (Main)-2019]**

(1) NO (2) $CH_2 = 0$

(3) O_3 (4) N_2

15. The compound that is NOT a common component of photochemical smog is **[JEE (Main)-2019]**

(1) $H_3C - \underset{\underset{O}{\|}}{C} - OONO_2$

(2) $CH_2 = CHCHO$

(3) CF_2Cl_2

(4) O_3

16. The upper stratosphere consisting of the ozone layer protects us from the sun's radiation that falls in the wavelength region of **[JEE (Main)-2019]**

(1) 200 – 315 nm (2) 600 – 750 nm

(3) 400 – 550 nm (4) 0.8 – 1.5 nm

17. Which is wrong with respect to our responsibility as a human being to protect our environment? **[JEE (Main)-2019]**

(1) Using plastic bags

(2) Restricting the use of vehicles

(3) Avoiding the use of floodlighted facilities

(4) Setting up compost tin in gardens

18. Assertion : Ozone is destroyed by CFCs in the upper stratosphere.

Reason : Ozone holes increase the amount of UV radiation reaching the earth. **[JEE (Main)-2019]**

(1) Assertion and reason are both correct, and the reason is the correct explanation for the assertion.

(2) Assertion is false, but the reason is correct.

(3) Assertion and reason are correct, but the reason is not the explanation for the assertion.

(4) Assertion and reason are incorrect.

19. The maximum prescribed concentration of copper in drinking water is : **[JEE (Main)-2019]**

(1) 3 ppm

(2) 0.05 ppm

(3) 0.5 ppm

(4) 5 ppm

20. Excessive release of CO_2 into the atmosphere results in **[JEE (Main)-2019]**

(1) Depletion of ozone

(2) Polar vortex

(3) Formation of smog

(4) Global warming

21. The layer of atmosphere between 10 km to 50 km above the sea level is called as **[JEE (Main)-2019]**

(1) Stratosphere (2) Mesosphere

(3) Thermosphere (4) Troposphere

22. The regions of the atmosphere, where clouds form and where we live, respectively, are : **[JEE (Main)-2019]**

(1) Troposphere and Troposphere

(2) Stratosphere and Troposphere

(3) Troposphere and Stratosphere

(4) Stratosphere and Stratosphere

23. Air pollution that occurs in sunlight is **[JEE (Main)-2019]**

(1) Fog

(2) Oxidising smog

(3) Acid rain

(4) Reducing smog

24. The correct set of species responsible for the photochemical smog is : **[JEE (Main)-2019]**

(1) CO_2, NO_2, SO_2 and hydrocarbons

(2) N_2, O_2, O_3 and hydrocarbons

(3) NO, NO_2, O_3 and hydrocarbons

(4) N_2, NO_2 and hydrocarbons

25. The primary pollutant that leads to photochemical smog is **[JEE (Main)-2019]**

(1) Nitrogen oxides

(2) Sulphur dioxide

(3) Ozone

(4) Acrolein

26. Among the gases (a) - (e), the gases that cause greenhouse effect are

(a) CO_2 (b) H_2O

(c) CFCs (d) O_2

(e) O_3

[JEE (Main)-2020]

(1) (a), (b), (c) and (d)

(2) (a), (c), (d) and (e)

(3) (a), (b), (c) and (e)

(4) (a) and (d)

27. The statement that is not true about ozone is

[JEE (Main)-2020]

(1) In the stratosphere, CFCs release chlorine free radicals (Cl) which reacts with O_3 to give chlorine dioxide radicals

(2) It is a toxic gas and its reaction with NO gives NO_2.

(3) In the atmosphere, it is depleted by CFCs

(4) In the stratosphere, it forms a protective shield against UV radiation

28. Glycerol is separated in soap industries by

[JEE (Main)-2020]

(1) Fractional distillation

(2) Differential extraction

(3) Distillation under reduced pressure

(4) Steam distillation

29. Thermal power plants can lead to

[JEE (Main)-2020]

(1) Eutrophication

(2) Ozone layer depletion

(3) Blue baby syndrome

(4) Acid rain

30. The incorrect statement(s) among (a) – (d) regarding acid rain is (are)

(a) It can corrode water pipes.

(b) It can damage structures made up of stone.

(c) It cannot cause respiratory ailments in animals.

(d) It is not harmful for trees. **[JEE (Main)-2020]**

(1) (a), (c) and (d) (2) (a), (b) and (d)

(3) (c) and (d) (4) (c) only

31. The condition that indicates a polluted environment is **[JEE (Main)-2020]**

(1) 0.03% of CO_2 in the atmosphere

(2) pH of rain water to be 5.6

(3) Eutrophication

(4) BOD value of 5 ppm

32. The presence of soluble fluoride ion upto 1 ppm concentration in drinking water, is

[JEE (Main)-2020]

(1) Safe for teeth (2) Harmful to skin

(3) Harmful for teeth (4) Harmful to bones

❑ ❑ ❑