

Environmental Chemistry Important Questions With Answers

NEET Chemistry 2023

1. Mark the example which is not correctly matched?

- a) Air pollutants - Oxides of sulphur, nitrogen and carbon b) Particulate pollutants - Dust, mist, fumes
 c) Global warming - Methane, ozone, CFCs
d) Water soluble chemical pollutants - Oxides of nitrogen, carbon and sodium

Solution : -

Water soluble chemical pollutants are sulphuric acid, inorganic metal compounds, etc.

2. The dissolution of ozone layer causes ozone hole in the blanket surrounding the atmosphere. What are the ill effects of ozone hole?

- a) Greenhouse effect b) Global warming c) Acid rain **d) UV rays reaching the earth**

Solution : -

Ozone hole would allow the harmful UV rays of sun to reach the earth which cause skin cancer

3. Which of the following reactions is taking place resulting in discolouration of marble of the buildings like Taj Mahal?

- a) $\text{CaCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{CaSO}_4 + \text{H}_2\text{O} + \text{CO}_2$** b) $\text{CaCO}_3 + 2\text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2\text{O} + \text{CO}_2$
 c) $\text{CaCO}_3 + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2 + \text{CO}_2$ d) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$

Solution : -

High level of sulphur and nitrogen oxides cause acid rain which reacts with marble to decolourise it.

4. Match the upper limit concentrations of the pollutants in drinking water given in column I with column II and mark the appropriate choice.

Column I	Column II
(A) Lead	(i) 500 ppm
(B) Sulphate	(ii) 1ppm
(C) Nitrate	(iii) 50 ppb
(D) Fluoride	(iv) 50ppm

- a) (A) → (ii), (B) → (iii), (C) → (i), (D) → (iv) **b) (A) → (iii), (B) → (i), (C) → (iv), (D) → (ii)**
 c) (A) → (i), (B) → (iv), (C) → (iii), (D) → (ii) d) (A) → (iv), (B) → (ii), (C) → (iii), (D) → (i)

5. Photochemical smog is formed due to presence of:

- a) oxides of sulphur b) oxides of nitrogen c) oxides of carbon **d) oxides of lead**

Solution : -

Photochemical smog is formed due to photochemical reaction taking place when air contains NO_2 and hydrocarbons.

6. Which of the following statements is not true?

- a) Ammonia acts as sink for NO_x b) Limestone acts as sink for SO_x .
c) The average residence time of NO is one month.
 d) SO_x can be removed from flue gases by passing through a solution of citrate ions.

Solution : -

The average residence time of NO is 4 days.

7. Which of the following statements about photochemical smog is not correct?

a) It occurs in warm, dry and sunny climate.

b) Chemically, it is a reducing mixture and is called reducing smog.

c) It is formed as a result of action of sunlight on unsaturated hydrocarbons and nitrogen oxides.

d) It has high concentration of oxidising agents and is also called oxidising smog.

Solution : -

Classical smog is a reducing smog

8. Assertion: Ozone in the troposphere is a product of ultraviolet radiations acting on dioxygen molecules.

Reason: Ozone is thermodynamically very stable. Photochemical smog occurs in warm, dry and sunny climate. It has high concentration of oxidising agents and is therefore, called as oxidising smog.

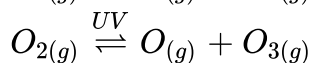
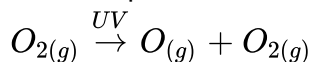
a) If both assertion and reason are true and reason is the correct explanation of assertion.

b) If both assertion and reason are true but reason is not the correct explanation of assertion.

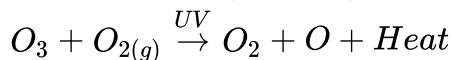
c) If assertion is true but reason is false. **d) If both assertion and reason are false.**

Solution : -

Ozone is present in stratosphere, and is a product of ultraviolet radiations acting on O₂,



Ozone is thermodynamically unstable and decomposes to molecular oxygen



9. Ozone hole is maximum over

a) Europe **b) Antarctica** c) India d) Africa

10. Smog is a common pollutant in places which have

a) high altitudes b) high temperature **c) high concentration of SO₂ in air**

d) high concentration of NH₃ in air.

11. Which oxide of nitrogen is not a common pollutant introduced into the atmosphere both due to natural and human activity?

a) N₂O b) NO₂ **c) N₂O₅** d) NO

Solution : -

Nitrogen pentaoxide (N₂O₅) is an oxide of nitrogen which is not a common pollutant. Nitrous oxide (N₂O) occurs naturally in environment. In automobile engine, when fuel is burnt dinitrogen and dioxygen combine to yield NO and NO₂.

12. An object is located at a height of 18 km from the surface of earth. The object is located in

a) thermosphere b) mesosphere c) ionosphere **d) stratosphere**

13. Which one of the following statements regarding photochemical smog is not correct?

a) Carbon monoxide does not play any role in photochemical smog formation.

b) Photochemical smog is an oxidizing agent in character.

c) Photochemical smog is formed through photochemical reaction involving solar energy.

d) Photochemical smog does not cause irritation in eyes and throat.

Solution : -

Photochemical smog cause eye and throat irritation.

14. Increased level of greenhouse gases causes global warming which will result in

a) biomagnification b) eutrophication **c) melting of glaciers** d) ozone depletion

Solution : -

Global warming may result in increase in average temperature of the earth and melting of glaciers.

15. Match the column I with column II and mark the appropriate choice

Column I (Pollutants)	Column II (Source)
(A) Toxic heavy metals	(i) Domestic sewage
(B) Microorganisms	(ii) Industries and chemical factories
(C) Organic wastes	(iii) Chemical fertilizers
(D) Plant nutrients	(iv) Discharge from food processing factories

- a) (A) → (i), (B) → (iii), (C) → (ii), (D) → (iv) b) (A) → (iii), (B) → (iv), (C) → (i), (D) → (ii)
 c) (A) → (iv), (B) → (ii), (C) → (iii), (D) → (i) **d) (A) → (ii), (B) → (i), (C) → (iv), (D) → (iii)**

16. Which one of the following statements is not true?

- a) pH of drinking water should be between 5.5 - 9.5
b) Concentration of DO below 6 ppm is good for the growth of fish.
 c) Clean water would have a BOD value of less than 5ppm.
 d) Oxides of sulphur, nitrogen and carbon, are the most widespread air pollutants

Solution : -

Fish dies in water bodies polluted by sewage due to decrease in dissolved oxygen (DO).

17. Which of the following practices will not come under green chemistry?

- a) If possible, making use of soap made of vegetable oils instead of using synthetic detergents
 b) Using H₂O₂ for bleaching purpose instead of using chlorine based bleaching agents
 c) Using bicycle for travelling small distances instead of using petrol/diesel based vehicles.
d) Using plastic cans for neatly storing substances

Solution : -

Plastics are non-biodegradable, hence are not environmental friendly.

18. Photochemical smog is formed in

- a) summer during day time** b) summer during morning time c) winter during morning time
 d) winter during day time

Solution : -

Photochemical smog is formed in summer during bright sunny day time.

19. Which of the following pollutants is not harmful for lungs?

- a) CO **b) CO₂** c) SO₂ d) NO₂

20. Green chemistry means such reactions which

- a) produce colour during reactions **b) reduce the use and production of hazardous chemicals**
 c) are related to the depletion of ozone layer d) study the reactions in Plants

Solution : -

Green chemistry as a sustainable chemistry, that means chemistry and chemical formation focused on reduce the use and generation of hazardous substances or environmental impact of chemistry.

21. Eutrophication causes

- a) increase in nutrients b) increase in dissolved salts **c) reduction in dissolved oxygen**
 d) reduction in water pollution

Solution : -

Eutrophication results in reduction of dissolved oxygen.

22. Which of the following gases is not a greenhouse gas?

- a) CO** b) O₃ c) CH₄ d) H₂O vapour

Solution : -

Carbon dioxide, methane, water vapour, nitrous oxide, CFCs and ozone are greenhouse gases. Carbon monoxide, CO is not a greenhouse gas

23. Biological Oxygen Demand (BOD) can be defined as,

- a) the amount of oxygen required by bacteria to break down the organic matter of a sample of water
- b) the amount of chemicals required to break down the organic matter of a sample of water
- c) the amount of phosphate required to oxidise the organic matter of a sample of water
- d) the amount of organic matter present in the given sample of water.

Solution : -

The amount of BOD in water is the measure of the amount of organic matter in water in terms of how much oxygen is required to break it down biologically.

24. Which of the following is not an air pollutant?

- a) H_2
- b) SO_2
- c) O_3
- d) NO_x

25. Photochemical smog consists of excessive amount of X in addition to aldehydes, ketones, PAN etc. X is

- a) methane
- b) carbon monoxide
- c) carbon dioxide
- d) **ozone**

Solution : -

Photochemical smog contains excess amount of ozone in addition to aldehydes, ketones and PAN

26. The pollutants which come directly in the air from sources are called primary pollutants. Primary pollutants are sometimes converted into secondary pollutants. Which of the following belongs to secondary air pollutants?

- a) CO
- b) Hydrocarbon
- c) **Peroxyacetyl nitrate**
- d) NO

Solution : -

Peroxyacetyl nitrate (PAN), formed from the primary pollutants NO_2 , O_3 and hydrocarbons, IS the secondary pollutant.

27. Which of these are biodegradable pollutants?

- (i) Pesticides
 - (ii) Mercuric salts
 - (iii) Sewage
 - (iv) Radioactive wastes
- a) (i) and (ii)
 - b) (i) and (iii)
 - c) (i), (iii) and (iv)
 - d) **(iii) only**

Solution : -

Only sewage is biodegradable.

28. The gaseous envelope around the earth is known as atmosphere. The lowest layer of this is extended upto 10 km from sea level, this layer is _____.

- a) stratosphere
- b) **troposphere**
- c) mesosphere
- d) hydrosphere

29. Assertion: Heavy metals such as cadmium, mercury, nickel etc. are water pollutants.

Reason: Heavy metals are not harmful to humans

- a) If both assertion and reason are true and reason is the correct explanation of assertion.
- b) If both assertion and reason are true but reason is not the correct explanation of assertion.
- c) **If assertion is true but reason is false.**
- d) If both assertion and reason are false.

Solution : -

Heavy metals like cadmium, nickel, mercury etc. are dangerous to humans because our body cannot excrete them and they can damage kidneys, central nervous system, liver etc.

30. Organic matter is considered as a major source of water pollution caused by wastes of food, animal and human excreta, garbage etc. The excess of organic matter in water causes a threat to aquatic life because

- a) the space available to aquatic life decreases
- b) microorganisms consume dissolved oxygen to decompose organic matter**
- c) organic matter is swallowed by small animals
- d) decomposition of organic matter increases the temperature of water

Solution : -

If a lot of organic matter is decomposed, a lot of dissolved oxygen is consumed by microorganisms hence dissolved oxygen is no longer available for aquatic life.

31. Assertion: The process in which nutrient rich water bodies develop plant population is called eutrophication.
Reason : Eutrophication helps in enhancement of plants and animals population by providing them oxygen.
- a) If both assertion and reason are true and reason is the correct explanation of assertion.
 - b) If both assertion and reason are true but reason is not the correct explanation of assertion.
 - c) If assertion is true but reason is false.**
 - d) If both assertion and reason are false.

Solution : -

Eutrophication kills animal life by depriving it of oxygen and results in subsequent loss of biodiversity.

32. Which of the following is not correctly matched?
- a) Water pollution - using synthetic detergents for washing clothes
 - b) Photochemical smog releasing gases produced by automobiles and factories
 - c) Damaging ozone layer - using CFCs
 - d) Acid rain - releasing pesticides and fertilizers in water**

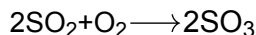
Solution : -

Acid rain is caused by releasing gases to atmosphere after burning waste material containing sulphur and nitrogen.

33. Acid rain is produced by _____ .
- a) excessive release of CO in air
 - b) excessive release of SO₂ and H₂S in air
 - c) excessive release of NO₂ and SO₂ in air**
 - d) excessive release of NH₃ and CO₂ in air.

Solution : -

Acid rain is produced by excess of NO₂ and SO₂ released from burning of fossil fuels.



34. Sewage containing organic waste should not be disposed in water bodies because it causes major water pollution. Fish in such a polluted water die because of
- a) large number of mosquitoes
 - b) increase in the amount of dissolved oxygen
 - c) decrease in the amount of dissolved oxygen in water**
 - d) clogging of gills by mud.

Solution : -

If the concentration of dissolved oxygen in water is below 6 ppm, the growth of fish gets inhibited

35. Mark the incorrect choice of ill effects caused by the pollutant
- a) Lead - Kidney, Liver, Reproductive system
 - b) Fluoride - Bones and teeth
 - c) Nitrate - Blue baby's syndrome
 - d) Sulphur dioxide - Nervous system diseases**

Solution : -

Even a low concentration of sulphur dioxide causes respiratory diseases e.g., asthma, bronchitis, emphysema in human beings. Sulphur dioxide causes irritation to the eyes, resulting in tears and redness.

36. Which of the following is not regarded as a pollutant?
- a) NO₂
 - b) CO₂**
 - c) SO₂
 - d) CO
37. Carbon monoxide is naturally produced by oxidation of X, a gas present in swamp area while it can be produced by Y of fuels containing carbon.
- a) X = CO₂, Y = complete combustion
 - b) X = CH₄, Y = incomplete combustion**
 - c) X = C, Y = oxidation
 - d) X = CH₄, Y = complete combustion

38. Photochemical smog occurs in warm, dry and sunny climate. One of the following is not amongst the components of photochemical smog, identify it.

- a) NO b) O₃ c) SO₂ **d) Unsaturated hydrocarbon**

Solution : -

SO₂ is the component of classical smog (i.e.; reducing smog) while unsaturated hydrocarbons, nitrogen oxides and ozone are the components of photochemical smog (i.e.; oxidising smog).

39. 10 mL of water requires 1.47 mg of K₂Cr₂O₇ (M. wt.=294) for oxidation of dissolved organic matter. C.O.D is:

- a) 2.44 ppm **b) 24 ppm** c) 32 ppm d) 1.6 ppm

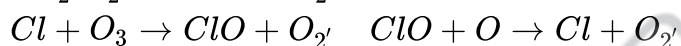
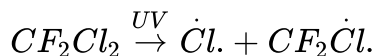
40. Which of the following statements is correct?

- a) Ozone hole is a hole formed in stratosphere from which ozone oozes out
b) Ozone hole is a hole formed in the troposphere from which ozone oozes out.
c) Ozone hole is thinning of ozone layer of stratosphere at some places.
d) Ozone hole means vanishing of ozone layer around the earth completely.

41. Which of the following free radicals is responsible for causing break down of ozone into oxygen due to use CFCs?

- a) \dot{O} **b) \dot{Cl}** c) $\dot{C}H_3$ d) $\dot{O}H$

Solution : -



The chlorine radicals are continuously regenerated and cause the break down of ozone.

42. Which of the following statements is not true about classical smog?

a)

Its main components are produced by the action of sunlight on emissions of automobiles and factories.

- b) Produced in cold and humid climate c) It contains compounds of reducing nature.
d) It contains smoke, fog and sulphur dioxide

Solution : -

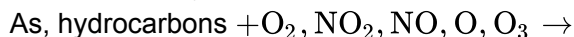
The main components of photochemical smog are produced by the action of sunlight on emissions of automobiles and factories

43. Which of the following is not a common component of Photochemical smog?

- a) Ozone b) Acrolein c) Peroxyacetyl nitrate **d) Chlorofluorocarbons**

Solution : -

The oxidised hydrocarbons and ozone in presence of humidity due to photochemical smog



peroxides, formaldehyde, peroxyacetyl-nitrate (PAN), acrolein etc., thus chlorofluorocarbons are not common component of photochemical smog.

44. Among the following. the one that is not a green house gas is

- a) Methane b) Ozone **c) Sulphur dioxide** d) Nitrous oxide

Solution : -

Fact

SO₂ (g) is not a greenhouse gas.

45. Lung diseases are about four times more probable in urban areas as compared to rural areas. This is due to the presence of which of the following in atmosphere?

- a) CO₂ **b) NO₂** c) O₂ d) N₂

46. Choose the correct words to fill in the blanks. Pollutant is defined as, a substance or an agent which causes pollution. ____ (i) ____ and ____ (ii) ____ are chemical pollutants. Pollutants can be ____ (iii) ____ which rapidly break down by ____ (iv) ____ processes.

a)

i	ii	iii	iv
Heavy metals	DDT	degradable	natural

b)

i	ii	iii	iv
Particulates	Heavy metals	non-degradable	artificial

c)

i	ii	iii	iv
non-degradable	petroleum	degradable	artificial

d)

i	ii	iii	iv
Micro-organisms	natural gas	non-degradable	natural

47. Assertion: Chlorine sinks are formed during summer, hence, preventing ozone depletion.

Reason: In summer season, nitrogen dioxide and methane react with chlorine monoxide and chlorine radicals.

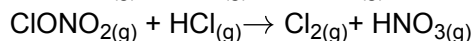
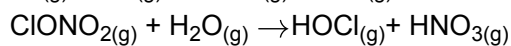
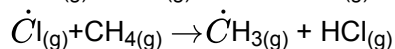
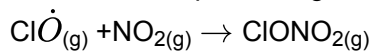
a) If both assertion and reason are true and reason is the correct explanation of assertion.

b) If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false. d) If both assertion and reason are false.

Solution : -

During summer, nitrogen dioxide and methane react with chlorine monoxide and chlorine radicals, forming chlorine sinks, preventing much ozone depletion.



48. Which one of the following is not a common component of photochemical smog?

a) Ozone b) Acrolein c) Peroxyacetyl nitrate d) **Chlorofluorocarbons**

Solution : -

CFC (Chlorofluoro carbons) is not the component of photochemical smog.

49. Which of the following practices involve green chemistry?

(i) Substitute CFCs by environmental friendly HFCs and other compounds.

(ii) Replace halogenated solvent by liquid CO₂ for drycleaning.

(iii) Use of H₂O₂ for bleaching instead of Cl₂.

(iv) Making disposable eating utensils and storage jars of plastics.

a) (i) and (ii) b) (ii) and (iv) c) (iii) and (iv) d) **(i), (ii) and (iii)**

Solution : -

Using plastic is not a part of the green chemistry since plastic is non-biodegradable.

50. As DDT passes into food chain, its concentration

a) remains same b) decreases c) becomes zero d) **increases**

Solution : -

With every trophic level in the food chain the concentration of DDT increases