



## CHEMISTRY

### BOOKS - MTG CHEMISTRY (ENGLISH)

#### ENVIRONMENTAL CHEMISTRY

#### Mcq Corner Environment Pollution

1. Choose the correct words to fill in the blanks .

Pollutant is defined as , a substance or an agent which causes pollution. . . . . and . . . . . are chemical pollutants

. Pollutants can be . . . . . which rapidly break down by . . . . . process .

A. Heavy metal-DDT-degradable -natural

B. Particulates- heavy metal-non-degradable-artificial

C. Non-degradable-petroleum-degradable-artificial

D. Microorganisms-natural gas-nondegradable-natural

**Answer: A**



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**Mcq Corner**

1. The zone which extends above troposphere up to 50 km above sea level and contains dinitrogen, dioxygen , ozone and little water vapour is called

A. exosphere

B. mesosphere

C. ionosphere

D. stratosphere.

**Answer: D**



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

A. thermosphere

B. measosphere

C. ionosphere

D. stratosphere.

**Answer: D**



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**3. The region which is greatly affected by air pollution is**

A. troposphere

B. stratosphere

C. mesosphere

D. thermosphere.

**Answer: A**





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4. Which of the following is not regarded as a pollutant ?

A.  $NO_2$

B.  $CO_2$

C.  $SO_2$

D. CO

**Answer: B**



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

A.  $N_2$

B.  $N_2O$

C.  $CO$

D.  $NO$

**Answer: A**



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**6.** Sulphur oxides which are responsible for major air pollution are caused by

A. burning of coal and refining of petroleum

B. burning of fuels in automobiles

C. combustion of fuels containing C and H

D. using indoor combustion devices like cooking gas.

**Answer: A**



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

A. CO

B.  $CO_2$

C.  $SO_2$

D.  $NO_2$

**Answer: B**



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8. Carbon monoxide is harmful to human beings as it is
- A. is carcinogenic
  - B. is antagonistic to  $CO_2$
  - C. has higher affinity for haemoglobin as compared to oxygen
  - D. is destructive to  $CO_2$

**Answer: C**



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9. Incomplete combustion of petrol or diesel in automobile engine produces

A. CO and  $H_2O$  vapours

B. CO and  $NO_2$

C. CO

D.  $SO_2$

**Answer: C**



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10. carbon monoxide is naturally produced by oxidation of . . . . . , a gas present in swamp area while it can be produced by . . . . . of fuels containing carbon.

A.  $X = CO_2$ , Y = complete combustion

B.  $x = CH_4$ , Y = incomplete combustion

C.  $X = C$ , Y = oxidation

D.  $X = CH_4$ , Y = complete combustion

**Answer: B**



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11. Which of the following processes is not responsible for adding particulates to the atmosphere ?

- A. Photosynthesis
- B. Combustion of fuels
- C. Industrial processes
- D. Agricultural processes

**Answer: A**



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12. Which of the following is a greenhouse gas ?

A.  $SO_2$

B.  $H_2S$

C.  $CO_2$

D.  $O_2$

**Answer: C**



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**13.** Increased level of greenhouse gases cause global warming which result in

A. biomagnification

B. eutrophication



C. melting of glaciers

D. ozone depletion

**Answer: C**



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**14.** Acid rain is produced by

A. excessive release of CO in air

B. excessive release of  $SO_2$  and  $H_2S$  in air .

C. excessive release of  $NO_2$  and  $SO_2$  in air

D. excessive release of  $NH_3$  and  $CO_2$  in air .

**Answer: C**



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15. The two strong acids present in the acid rain are

A.  $HNO_2$  and  $HNO_3$

B.  $H_2SO_4$  and  $HNO_3$

C.  $H_2SO_3$  and  $H_2SO_4$

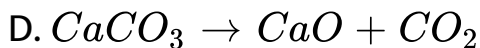
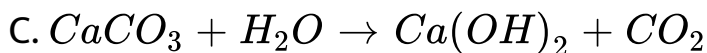
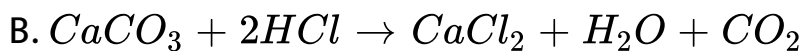
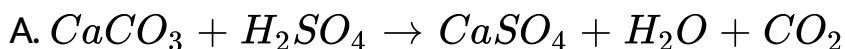
D.  $H_2CO_3$  and  $HCl$

Answer: B



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



**Answer: A**



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17. Mists are produced by

- A. smoke formed during combustion of organic matter
- B. particles of spray liquids and by condensation of vapours in air
- C. fine solid particles produced during crushing and grinding
- D. condensation of vapours during chemical reactions

**Answer: B**



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18. 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.

**Answer: B**



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19. Smog is common pollutant in places having:

A. high altitudes

B. high temperature

C. high concentration of  $SO_2$  in air

D. high concentration of  $NH_3$  in air

**Answer: C**



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20. The brown , hazy fumes of photochemical smog are due to

A. nitrogen dioxide

B. PAN formation

C. aldehydes

D.  $SO_2$

**Answer: A**



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**21.** Which of the following is not a common component of photochemical smog ?

A. Peroxyacetyl nitrate

B. Acrolein

C. Formaldehyde

D. Carbon dioxide

**Answer: D**



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**22.** Which of the following gases is not responsible for photochemical smog ?

A. Oxides of nitrogen

B. Hydrocarbons

C. inert gases

D. Carbon monoxide



**Answer: C**



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**23.** 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.

**Answer: A**



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24. Photochemical smog is formed due to presence of

- A. oxides of sulphur
- B. oxides of nitrogen
- C. winter during morning time.
- D. winter during day time.

**Answer: B**



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25. The secondary precursors of photochemical smog are

- A.  $SO_2$  and  $NO_2$

B.  $NO_2$  and hydrocarbons

C.  $O_3$  and PAN

D.  $CO_2$  and  $O_2$

**Answer: C**

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**26.** Mark the correct statement .

A. Photochemical smog occurs in day time while the classical smog occurs in early morning hours.

B. Acid rain damages the buildings while it is not toxic to vegetation and aquatic life .

C. Carbon monoxide is a greenhouse gas which results in global warming .

D. Smoke consists of fine particles produced during crushing and grinding of solid materials

**Answer: A**



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**27.** The dissolution of ozone layer causes ozone hole in the blanket surrounding the atmosphere . What are the till effects of ozone hole ?

A. Green house effect

B. Global warming

C. Acid rain

D. UV rays reaching the earth .

**Answer: D**



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

A. O

B. Cl

C.  $CH_3$

D. OH

**Answer: B**

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29. Freons are not recommended to be used in refrigerators because they

A. cause global warming

B. cause acid rain

C. cause depletion of ozone layer

D. cause very less cooling

**Answer: c**



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**30. Ozone hole is maximum over**

A. Europe

B. Antarctica

C. India

D. Africa

**Answer: B**



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**31.** Ozone depletion due to the formation of following compound in Antarctica

A. Acrolein

B. PAN

C. PCBs

D. Chlorine nitrate

**Answer: D**



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**32.** Identify the correct statement .



- A. Non-conventional sources of energy cause more pollution
- B. Ozone is a harmless gas present in the atmosphere
- C. Chlorofluorocarbons break down to chlorine atoms by ultraviolet radiation.
- D. Trees don not help in decreasing rate of global warming.

**Answer: C**



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**33. 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

**Answer: D**



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**34.** 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 caused 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 .

**Answer: B**



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35. 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

**Answer: D**



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36. Few pollutants and their effects are listed below .

Mark the incorrect match .

A. Phosphate fertilizers in water - eutrophication

B. Hydrogen released in air - Global warming

C. Sewage dispsed in water - Increase in BOD level

D. Carbon dioxide in air - Acid rain

**Answer: B**



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37. BOD (biological oxygen demand) is

- 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.

**Answer: A**



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**38.** Eutrophication causes

- A. increase in nutrients
- B. increase in dissolved salts
- C. reduction in dissolved oxygen
- D. reduction in water pollution

**Answer: C**



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**39.** 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

**Answer: D**



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**40.** As DDT passes into food chain , its concentration

A. remains same

B. decreases

C. become zero



D. increases

**Answer: D**



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**41. Which of these are biodegradable pollutants ?**

A. (1) and (ii)

B. (1) and (iii)

C. (i),(ii)and (iv)

D. (iii) only

**Answer: D**



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42. Which of the following practices involve green chemistry ?

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

(ii) Replace halogenated solvent by liquid  $CO_2$  for drycleaning ,

(iii) Use of  $H_2O_2$  for bleaching instead of  $Cl_2$

(iv) Use of tamarind seeds to clean municipal and industrial waste water.

A. (i) and (ii) only

B. (ii) and (iv) only

C. (iii) and (iv) only

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

**Answer: D**



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**43.** Green chemistry involves

- A. production of chemicals of our daily use from green house gases
- B. such chemical processes in which green plants are used
- C. those reactions which are of biological origin

D. use of non- toxic reagents and solvents to produce environment friendly products .

**Answer: D**

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**44.** Which of the following practices will come under green chemistry ?

A. If possible , making se of soap made of vegetable oils instead of using synthetic detergents

B. using  $H_2O_2$  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. All of these

**Answer: D**

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## Higher Order Thinking Skills

1.

List - I

(A) Troposphere

(B) Stratosphere

(C) Mesosphere

(D) Thermosphere

List - II

(i) Prevents UV rays coming to earth

(ii) Ionization of gases

(iii) Maintenance of heat balance

(iv) Non propagation of sound waves

The correct match is

- A. (A) (B) (C) (D)  
(ii) (iv) (iii) (i)
- B. (A) (B) (C) (D)  
(iv) (ii) (i) (iii)
- C. (A) (B) (C) (D)  
(iii) (i) (iv) (ii)
- D. (A) (B) (C) (D)  
(i) (iii) (ii) (iv)

**Answer: C**



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2. 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

**Answer: C**

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**3. Identify the correct statements.,**

(i) Winter smog is reducing in nature due to presence of particular carbon and  $SO_2$

(ii) The pollutant obtained from emission tubes of diesel engines is benzopyrene.

(iii) Photochemical smog is made up of PAN ,  $O_3$  and

oxides of nitrogen

(iv) CFCs are stable in troposphere and act as pollutants in stratosphere

A. (ii),(iii) and (iv)

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

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

D. all of these

**Answer: D**



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**4. Consider the following statements :**

(i) Zirconium - alizarins due is used for testing fluoride



ions is water

(ii) Ozone layer is present in mesosphere

(iii) the poisonous gas present in the exhaust fumes of automobiles is Co

(iv) Taj Mahal is affected by  $CO_2$  gas

The correct statement are

A. (i) and (iii)

B. (i),(ii) ,(iii)

C. (i),(iii) and (iv)

D. all of these

**Answer: A**



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5. 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.  $CO_2$

B.  $NO_2$

C.  $O_2$

D.  $N_2$

**Answer: B**



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6. 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

**Answer: D**



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7. B.O.D values of four samples of water A,B,C and D are given below

A 160 ppm

B 35 ppm

C 180 ppm

D 25 ppm

A.  $C > A > D > B$

B.  $D > B > A > C$

C.  $C > A > B > D$

D.  $D > A > B > C$

**Answer: C**



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8. 10 mL of water requires 1.47 mg of  $K_2Cr_2O_7$  (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

**Answer: B**



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9. Which one of the following statements is not correct ?

A. DDT and BHC are not good insecticides because they are highly soluble in water.

B. DDT and BHC are not good insecticides because they are absorbed by the soil and contaminate root crops .

C. Aldrin is not a good insecticide because it is not biodegradable .

D. All the above are incorrect .

**Answer: A**



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1. Which of the following is not a greenhouse gas ?

A. CO

B.  $O_3$

C.  $CH_4$

D.  $H_2O$  vapour

**Answer: A**

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2. Photochemical smog occurs in warm, dry and sunny climate, One of the following is not amongst the

components of photochemical smog, identify it.

A.  $NO_2$

B.  $O_3$

C.  $SO_2$

D. Unsaturated hydrocarbon

**Answer: C**



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**3.** 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

**Answer: A**



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4. Biochemical Oxygen Demand , (BOD) is a measure of organic material present in water . bOD value less than 5 ppm indicates a water sample to be .....

- A. rich in dissolved oxygen
- B. poor in dissolved oxygen
- C. highly polluted
- D. not suitable for aquatic life

**Answer: A**



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**5. Which of the following statements is wrong ?**

- A. Ozone is not responsible for greenhouse effect.
- B. Ozone can oxidise sulphur dioxide present in the atmosphere to sulphur trioxide.

C. Ozone hole is thinning of ozone layer present in the stratosphere.

D. Ozone is produced in upper stratosphere by the action of UV rays on oxygen.

**Answer: A**



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6. Sewage containing organic waste should not be disposed in water bodies because it causes major water pollution. Fishes in such a polluted water die because of

A. larger 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

**Answer: C**



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7. Which of the following statements about photochemical smog is wrong ?

A. It has high concentration of oxidising agents.

B. It has low concentration of oxidising agent.

C. It can be controlled by controlling the release of

$NO_2$ , hydrocarbons, ozone etc.

D. Plantation of some plants like pinus helps in

controlling photochemical smog.

**Answer: B**



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8. 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

**Answer: B**

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9. Dinitrogen and dioxygen are main constituents of air but these do not react with each other to form oxides of nitrogen because

A. the reaction is endothermic and requires very high temperature

- B. the reaction can be initiated only in presence of a catalyst
- C. oxides of nitrogen are unstable
- D.  $N_2$  and  $O_2$  are unreactive

**Answer: A**



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**10.** 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

**Answer: C**



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**11. Which of the following statement 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.

**Answer: C**

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**12.** 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  $H_2O_2$  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.

**Answer: D**



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## Assertion Reason Corner

1. Assertion : Acid rain causes lakes and rivers to become acidic .

Reason : Buildings materials like limestone, marble , etc. are weakened on reaction with acid rain.

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.

**Answer: b**



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2. Assertion : Normally rain water has a pH of 5.6

Reason :  $H^+$  ions are formed by the reaction of rain water with carbon dioxide present in the air.

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.

**Answer: a**



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**3. Assertion :** Catalytic converters must be used in cars.

**Reason :** Catalytic converter helps to reduce the formation of acid rain.

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.

**Answer: a**



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4. Assertion : Mists are non- viable particulates produced by particles of spray liquids and by condensation of vapours in air.

Reason : Herbicides and insecticides that miss their targets, travel through air and form mists.

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.

**Answer: b**



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5. Assertion : The effects of particulate pollutants are largely dependent on the particle size.

Reason : Air borne particles such as dust , fumes , mist etc., are dangerous for human health .

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.

**Answer: b**



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**6. Assertion :** Classical smog is oxidising smog whereas photochemical smog is reducing smog.

**Reason :** Classical smog occurs in warm, dry and sunny climate whereas photochemical smog occurs in cool humid climate .

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.

**Answer: d**



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

Reason : Ozone is thermodynamically very stable.

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.

**Answer: d**



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**8.** Assertion : The main reasons of ozone layer depletion is believed to be the release of chlorofluorocarbon compounds known as freons.

Reason : CFCs are transporting agents for continuously generating chlorine radicals into the stratosphere.

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.

**Answer: a**



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

**Reason :** In summer seasons, 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.

**Answer: a**



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**10. Assertion :** The amount of BOD in the water is a measure of the amount of organic material in the water .

**Reason :** Clear water has BOD less than 5 ppm whereas highly polluted water can have BOD value of 17 ppm or more .

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.

**Answer: b**



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11. 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.

**Answer: c**



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**12.** Assertion : Manures and biofertilizers should be used in place of chemical fertilizers.

Reason : Chemical fertilizers cause pollution by releasing excess nutrients in water bodies.

- 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.

**Answer: a**



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**13.** Assertion : The process in which nutrient rich water bodies develop plant population is called eutrophication.

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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.

**Answer: c**

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**14.** Assertion : Soluble fluoride is often added to drinking water to bring its concentration up to 1 ppm.

Reason :  $F^-$  ion concentration above 2 ppm causes brown mottling of teeth.

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.

**Answer: b**



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**15.** Assertion : Excess nitrate in drinking water causes 'blue baby' syndrome.

Reason : The maximum limit of nitrate in drinking water is 50 ppb.

- 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.

**Answer: c**



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**Environment Pollution**

1. Choose the correct words to fill in the blanks .

Pollutant is defined as , a substance or an agent which causes pollution. . . . . and . . . . . are chemical pollutants

. Pollutants can be . . . . . which rapidly break down by . . . . . process .

A. Heavy metal-DDT-degradable -natural

B. Particulates- heavy metal-non-degradable-artificial

C. Non-degradable-petroleum-degradable-artificial

D. Microorganisms-natural gas-nondegradable-natural

**Answer: A**



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## Atmospheric Pollution

1. The zone which extends above troposphere up to 50 km above sea level and contains dinitrogen, dioxygen, ozone and little water vapour is called

- A. exosphere
- B. mesosphere
- C. ionosphere
- D. stratosphere.

**Answer: D**



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

A. thermosphere

B. measosphere

C. ionosphere

D. stratosphere.

**Answer: D**



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3. The region which is greatly affected by air pollution is

A. troposphere

B. stratosphere

C. mesosphere

D. thermosphere.

**Answer: A**



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**4. Which of the following is not regarded as a pollutant ?**

A.  $NO_2$

B.  $CO_2$

C.  $SO_2$

D. CO

**Answer: B**



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

A.  $N_2$

B.  $N_2O$

C.  $CO$

D.  $NO$

**Answer: A**



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6. Sulphur oxides which are responsible for major air pollution are caused by

- A. burning of coal and refining of petroleum
- B. burning of fuels in automobiles
- C. combustion of fuels containing C and H
- D. using indoor combustion devices like cooking gas.

**Answer: A**



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

A. CO

B.  $CO_2$

C.  $SO_2$

D.  $NO_2$

**Answer: B**



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**8.** Carbon monoxide is harmful to human beings as it is

A. is carcinogenic

B. is antagonistic to  $CO_2$

C. has higher affinity for haemoglobin as compared to oxygen

D. is destructive to  $CO_2$

**Answer: C**

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9. Incomplete combustion of petrol or diesel in automobile engine produces

A. CO and  $H_2O$  vapours

B. CO and  $NO_2$

C. CO

D.  $SO_2$

**Answer: C**



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10. carbon monoxide is naturally produced by oxidation of . . . . . , a gas present in swamp area while it can be produced by . . . . . of fuels containing carbon.

A.  $X = CO_2$ , Y = complete combustion

B.  $x = CH_4$ , Y = incomplete combustion

C. X = C, Y = oxidation

D.  $X = CH_4$ , Y = complete combustion

**Answer: B**



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**11.** Which of the following processes is not responsible for adding particulates to the atmosphere ?

- A. Photosynthesis
- B. Combustion of fuels
- C. Industrial processes
- D. Agricultural processes

**Answer: A**



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12. Which of the following is a greenhouse gas ?

A.  $SO_2$

B.  $H_2S$

C.  $CO_2$

D.  $O_2$

**Answer: C**



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13. Increased level of greenhouse gases cause global warming which result in

- A. biomagnification
- B. eutrophication
- C. melting of glaciers
- D. ozone depletion

**Answer: C**



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**14.** Acid rain is produced by

- A. excessive release of CO in air
- B. excessive release of  $SO_2$  and  $H_2S$  in air .
- C. excessive release of  $NO_2$  and  $SO_2$  in air

D. excessive release of  $NH_3$  and  $CO_2$  in air .

**Answer: C**



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15. The two strong acids present in the acid rain are

A.  $HNO_2$  and  $HNO_3$

B.  $H_2SO_4$  and  $HNO_3$

C.  $H_2SO_3$  and  $H_2SO_4$

D.  $H_2CO_3$  and  $HCl$

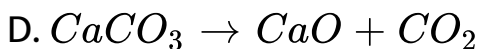
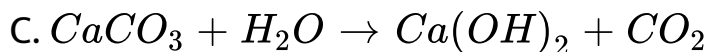
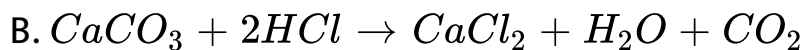
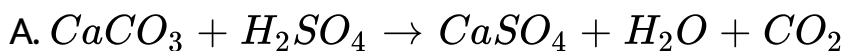
**Answer: B**



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



**Answer: A**



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17. Mists are produced by

A. smoke formed during combustion of organic matter

B. particles of spray liquids and by condensation of vapours in air

C. fine solid particles produced during crushing and grinding

D. condensation of vapours during chemical reactions

**Answer: B**



**Watch Video Solution**

1. 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.

**Answer: B**



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2. Smog is common pollutant in places having:

A. high altitudes

B. high temperature

C. high concentration of  $SO_2$  in air

D. high concentration of  $NH_3$  in air

**Answer: C**



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3. The brown , hazy fumes of photochemical smog are due to

A. nitrogen dioxide

B. PAN formation

C. aldehydes

D.  $SO_2$

**Answer: A**



**Watch Video Solution**

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

A. Peroxyacetyl nitrate

B. Acrolein

C. Formaldehyde

D. Carbon dioxide

**Answer: D**



**Watch Video Solution**

5. Which of the following gases is not responsible for photochemical smog ?

A. Oxides of nitrogen

B. Hydrocarbons

C. inert gases

D. Carbon monoxide

**Answer: C**



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**6. 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.

**Answer: A**



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7. Photochemical smog is formed due to presence of

- A. oxides of sulphur
- B. oxides of nitrogen
- C. winter during morning time.
- D. winter during day time.

**Answer: B**



[Watch Video Solution](#)

8. The secondary precursors of photochemical smog are



A.  $SO_2$  and  $NO_2$

B.  $NO_2$  and hydrocarbons

C.  $O_3$  and PAN

D.  $CO_2$  and  $O_2$

**Answer: C**



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**9. Mark the correct statement .**

A. Photochemical smog occurs in day time while the classical smog occurs in early morning hours.

B. Acid rain damages the buildings while it is not toxic to vegetation and aquatic life .

C. Carbon monoxide is a greenhouse gas which results in global warming .

D. Smoke consists of fine particcles produced during crushing and griding of solid materials

**Answer: A**



**Watch Video Solution**

**10.** The dissolution of ozone layer causes ozone hole in the blanket surrounding the atmosphere . What are the till effects of ozone hole ?

- A. Green house effect
- B. Global warming
- C. Acid rain
- D. UV rays reaching the earth .

**Answer: D**



**Watch Video Solution**

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

A. O

B. Cl

C.  $CH_3$

D. OH

**Answer: B**

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## Industrial Waste

1. Freons are not recommended to be used in refrigerators because they

A. cause global warming

B. cause acid rain

C. cause depletion of ozone layer

D. cause very less cooling

**Answer: c**



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## Strategies To Control Environmental Pollution

1. Ozone hole is maximum over

A. Europe

B. Antarctica

C. India

D. Africa

**Answer: B**

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2. Ozone depleton due to the fomation of following compound in Antarctica

A. Acrolein

B. PAN

C. PCBs

D. Chlorine nitrate

**Answer: D**



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## Green Chemistry

1. Identify the correct statement .

- A. Non-conventional sources of energy cause more pollution
- B. Ozone is a harmless gas present in the atmosphere
- C. Chlorofluorocarbons break down to chlorine atoms by ultraviolet radiation.

D. Trees do not help in decreasing rate of global warming.

**Answer: C**

 **Watch Video Solution**

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

Column I		Column II	
(A)	Peroxyacetyl nitrate	(i)	Global warming
(B)	Polychlorinated biphenyls	(ii)	Photochemical smog
(C)	Dioxides of carbon and sulphur	(iii)	Water pollutant
(D)	IR active molecules	(iv)	Acid rain

A. (A)  $\rightarrow$  (ii), (B)  $\rightarrow$  (iii), C  $\rightarrow$  (iv), (D)  $\rightarrow$  (i)



B.  $(A) \rightarrow (iii), (B) \rightarrow (iv), C \rightarrow (ii), (D) \rightarrow (i)$

C.  $(A) \rightarrow (iv), (B) \rightarrow (ii), C \rightarrow (iii), (D) \rightarrow (i)$

D.  $(A) \rightarrow (i), (B) \rightarrow (iii), C \rightarrow (ii), (D) \rightarrow (iv)$

**Answer: A**



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**3. 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

**Answer: D**



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4. 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 caused 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 .

**Answer: B**



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**5. 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

**Answer: D**



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**6.** Few pollutants and their effects are listed below . Mark  
the incorrect match .

A. Phosphate fertilizers in water - eutrophication

B. Hydrogen released in air - Global warming

C. Sewage dispsed in water - Increase in BOD level

D. Carbon dioxide in air - Acid rain

**Answer: B**



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7. BOD (biological oxygen demand) is

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.

**Answer: A**



**Watch Video Solution**

**8. Eutrophication causes**

- A. increase in nutrients
- B. increase in dissolved salts
- C. reduction in dissolved oxygen
- D. reduction in water pollution

**Answer: C**



[Watch Video Solution](#)

9. 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

**Answer: D**



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

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

A. (A)  $\rightarrow$  (ii), (B)  $\rightarrow$  (iii), (C)  $\rightarrow$  (i), (D)  $\rightarrow$  (iv)

B. (A)  $\rightarrow$  (iii), (B)  $\rightarrow$  (i), (C)  $\rightarrow$  (iv), (D)  $\rightarrow$  (ii)

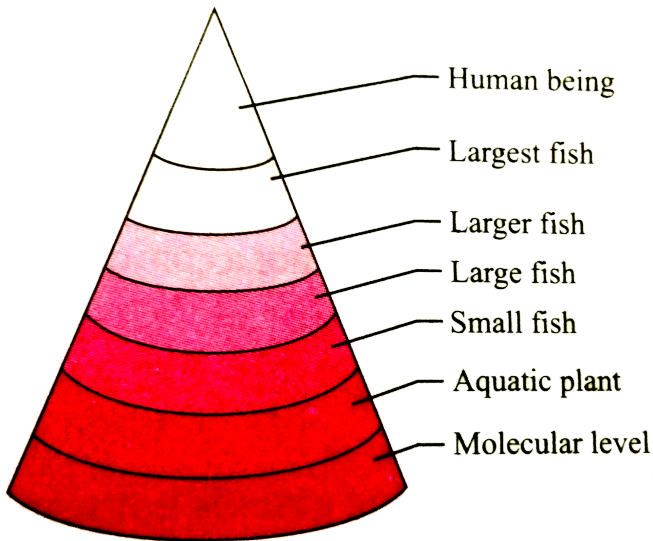
C. (A)  $\rightarrow$  (i), (B)  $\rightarrow$  (iv), (C)  $\rightarrow$  (iii), (D)  $\rightarrow$  (ii)

D. (A)  $\rightarrow$  (iv), (B)  $\rightarrow$  (ii), (C)  $\rightarrow$  (iii), (D)  $\rightarrow$  (i)

**Answer: B**



11. Study the given diagram and answer the following question.



Which is the most appropriate statement about the figure ?

- A. The trophic levels decrease from molecular level to human beings

B. At each trophic level the pollutants get approximately 10 times concentrated.

C. The level of pollutants is maximum at molecular level and minimum in human beings

D. Repeated use of toxins reduces its concentration at highest level

**Answer: B**



**Watch Video Solution**

**12.** As DDT passes into food chain , its concentration

A. remains same

B. decreases

C. become zero

D. increases

**Answer: D**



**Watch Video Solution**

**13.** 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.  $(A) \rightarrow (i), (B) \rightarrow (iii), (C) \rightarrow (ii), (D) \rightarrow (iv)$

B.  $(A) \rightarrow (iii), (B) \rightarrow (iv), (C) \rightarrow (i), (D) \rightarrow (ii)$

C.  $(A) \rightarrow (iv), (B) \rightarrow (ii), (C) \rightarrow (iii), (D) \rightarrow (i)$

D.  $(A) \rightarrow (ii), (B) \rightarrow (i), (C) \rightarrow (iv), D \rightarrow (iii)$

**Answer: D**



**Watch Video Solution**

14. Which of these are biodegradable pollutants ?

A. (1) and (ii)

B. (1) and (iii)

C. (i),(ii)and (iv)

D. (iii) only

**Answer: D**



**View Text Solution**

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

Column I		Column II	
(A)	Biodegradable pollutants	(i)	DDT
(B)	Non-biodegradable pollutants	(ii)	SO <sub>2</sub>
(C)	Primary pollutants	(iii)	PAN
(D)	Secondary pollutants	(iv)	Sewage

A.  $(A) \rightarrow (iii), (B) \rightarrow (iv), (C) \rightarrow (ii), (D) \rightarrow (i)$

B.

$(A) \rightarrow (ii), (B) \rightarrow (iii), (C) \rightarrow (iii), (D) \rightarrow (iv)$

C.  $(A) \rightarrow (i), (B) \rightarrow (ii), (C) \rightarrow (iii), (D) \rightarrow (iv)$

D.  $(A) \rightarrow (iv), (B) \rightarrow (i), (C) \rightarrow (ii), (D) \rightarrow (iii)$

**Answer: D**



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16. Which of the following practices involve green chemistry ?

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

(ii) Replace halogenated solvent by liquid  $CO_2$  for drycleaning ,

(iii) Use of  $H_2O_2$  for bleaching instead of  $Cl_2$

(iv) Use of tamarind seeds to clean municipal and industrial waste water.

A. (i) and (ii) only

B. (ii) and (iv) only

C. (iii) and (iv) only

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

**Answer: D**

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**17.** Green chemistry involves

- A. production of chemicals of our daily use from green house gases
- B. such chemical processes in which green plants are used
- C. those reactions which are of biological origin
- D. use of non- toxic reagents and solvents to produce environment friendly products .



**Answer: D**



**Watch Video Solution**

**18.** Which of the following practices will come under green chemistry ?

A. If possible , making se of soap made of vegetable oils instead of using synthetic detergents

B. using  $H_2O_2$  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. All of these

**Answer: D**



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## Higher Order Thinking Skills

1.

List - I

List - II

(A) Troposphere

(i) Prevents UV rays coming to earth

(B) Stratosphere

(ii) Ionization of gases

(C) Mesosphere

(iii) Maintenance of heat balance

(D) Thermosphere

(iv) Non propagation of sound waves

The correct match is

- A. (A) (B) (C) (D)  
(ii) (iv) (iii) (i)

- B. (A) (B) (C) (D)  
(iv) (ii) (i) (iii)
- C. (A) (B) (C) (D)  
(iii) (i) (iv) (ii)
- D. (A) (B) (C) (D)  
(i) (iii) (ii) (iv)

**Answer: C**

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2. 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

**Answer: C**



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**3. Identify the correct statements.,**

(i) Winter smog is reducing in nature due to presence of particular carbon and  $SO_2$

(ii) The pollutant obtained from emission tubes of diesel engines is benzopyrene.

(iii) Photochemical smog is made up of PAN ,  $O_3$  and oxides of nitrogen

(iv) CFCs are stable in troposphere and act as pollutants in stratosphere

A. (ii),(iii) and (iv)

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

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

D. all of these

**Answer: D**



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**4. Consider the following statements :**

(i) Zirconium - alizarins due is used for testing fluoride ions is water

(ii) Ozone layer is present in mesosphere

(iii) the poisonous gas present in the exhaust fumes of automobiles is Co

(iv) Taj Mahal is affected by  $CO_2$  gas

The correct statement are

A. (i) and (iii)

B. (i),(ii) ,(iii)

C. (i),(iii) and (iv)

D. all of these

**Answer: A**



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5. 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.  $CO_2$

B.  $NO_2$

C.  $O_2$

D.  $N_2$

**Answer: B**



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6. 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

**Answer: D**



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7. B.O.D values of four samples of water A,B,C and D are given below



A 160 ppm

B 35 ppm

C 180 ppm

D 25 ppm

A.  $C > A > D > B$

B.  $D > B > A > C$

C.  $C > A > B > D$

D.  $D > A > B > C$

**Answer: C**



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8. 10 mL of water requires 1.47 mg of  $K_2Cr_2O_7$  (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

**Answer: B**



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9. Which one of the following statements is not correct ?

A. DDT and BHC are not good insecticides because they are highly soluble in water.

B. DDT and BHC are not good insecticides because they are absorbed by the soil and contaminate root crops .

C. Aldrin is not a good insecticide because it is not biodegradable .

D. All the above are incorrect .

**Answer: A**



**Watch Video Solution**

1. Which of the following is not a greenhouse gas ?

A. CO

B.  $O_3$

C.  $CH_4$

D.  $H_2O$  vapour

**Answer: A**



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2. Photochemical smog occurs in warm, dry and sunny climate, One of the following is not amongst the

components of photochemical smog, identify it.

A.  $NO_2$

B.  $O_3$

C.  $SO_2$

D. Unsaturated hydrocarbon

**Answer: C**



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3. 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

**Answer: A**

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4. Biochemical Oxygen Demand , (BOD) is a measure of organic material present in water . bOD value less than 5 ppm indicates a water sample to be .....

- A. rich in dissolved oxygen
- B. poor in dissolved oxygen
- C. highly polluted
- D. not suitable for aquatic life

**Answer: A**



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**5. Which of the following statements is wrong ?**

- A. Ozone is not responsible for greenhouse effect.
- B. Ozone can oxidise sulphur dioxide present in the atmosphere to sulphur trioxide.

C. Ozone hole is thinning of ozone layer present in the stratosphere.

D. Ozone is produced in upper stratosphere by the action of UV rays on oxygen.

**Answer: A**



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6. Sewage containing organic waste should not be disposed in water bodies because it causes major water pollution. Fishes in such a polluted water die because of

A. larger 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

**Answer: C**



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7. Which of the following statements about photochemical smog is wrong ?

A. It has high concentration of oxidising agents.

B. It has low concentration of oxidising agent.

C. It can be controlled by controlling the release of

$NO_2$ , hydrocarbons, ozone etc.

D. Plantation of some plants like pinus helps in

controlling photochemical smog.

**Answer: B**



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8. 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

**Answer: B**



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9. Dinitrogen and dioxygen are main constituents of air but these do not react with each other to form oxides of nitrogen because

A. the reaction is endothermic and requires very high temperature

- B. the reaction can be initiated only in presence of a catalyst
- C. oxides of nitrogen are unstable
- D.  $N_2$  and  $O_2$  are unreactive

**Answer: A**



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**10.** 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

**Answer: C**



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**11. Which of the following statement 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.

**Answer: C**

 [Watch Video Solution](#)

**12.** 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  $H_2O_2$  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.

**Answer: D**



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## Assertion And Reason

1. Assertion : Acid rain causes lakes and rivers to become acidic .

Reason : Buildings materials like limestone, marble , etc. are weakened on reaction with acid rain.

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.

**Answer: b**



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2. Assertion : Normally rain water has a pH of 5.6

Reason :  $H^+$  ions are formed by the reaction of rain water with carbon dioxide present in the air.

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.

**Answer: a**



**Watch Video Solution**

**3. Assertion :** Catalytic converters must be used in cars.

**Reason :** Catalytic converter helps to reduce the formation of acid rain.

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.

**Answer: a**



**Watch Video Solution**

4. Assertion : Mists are non- viable particulates produced by particles of spray liquids and by condensation of vapours in air.

Reason : Herbicides and insecticides that miss their targets, travel through air and form mists.

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.

**Answer: b**



Watch Video Solution

5. Assertion : The effects of particulate pollutants are largely dependent on the particle size.

Reason : Air borne particles such as dust , fumes , mist etc., are dangerous for human health .

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.

**Answer: b**



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**6. Assertion :** Classical smog is oxidising smog whereas photochemical smog is reducing smog.

**Reason :** Classical smog occurs in warm, dry and sunny climate whereas photochemical smog occurs in cool humid climate .

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.

**Answer: d**

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

Reason : Ozone is thermodynamically very stable.

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.

**Answer: d**



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**8.** Assertion : The main reasons of ozone layer depletion is believed to be the release of chlorofluorocarbon compounds known as freons.

Reason : CFCs are transporting agents for continuously generating chlorine radicals into the stratosphere.

- 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.

**Answer: a**

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

**Reason :** In summer seasons, 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.

**Answer: a**



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**10. Assertion :** The amount of BOD in the water is a measure of the amount of organic material in the water .

**Reason :** Clear water has BOD less than 5 ppm whereas highly polluted water can have BOD value of 17 ppm or more .

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.

**Answer: b**



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**11.** 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.

**Answer: c**



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**12.** Assertion : Manures and biofertilizers should be used in place of chemical fertilizers.

Reason : Chemical fertilizers cause pollution by releasing excess nutrients in water bodies.

- 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.

**Answer: a**



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**13.** Assertion : The process in which nutrient rich water bodies develop plant population is called eutrophication.

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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.

**Answer: c**

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**14.** Assertion : Soluble fluoride is often added to drinking water to bring its concentration up to 1 ppm.

Reason :  $F^-$  ion concentration above 2 ppm causes brown mottling of teeth.

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.

**Answer: b**



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**15.** Assertion : Excess nitrate in drinking water causes 'blue baby' syndrome.

Reason : The maximum limit of nitrate in drinking water is 50 ppb.

- 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.

**Answer: c**



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