CHEMISTRY

BOOKS - DISHA PUBLICATION CHEMISTRY (HINGLISH)

ENVIRONMENTAL CHEMISTRY

Jee Main 5 Years At A Glance

1. Biochemical oxygen demand(BOD) value can be a measure of water pollution caused by the

organic matter. Which the following statements is correct?

A. Polluted water has BOD value higher than 10 ppm.

B. Acrobic bacteria decreases the BOD value.
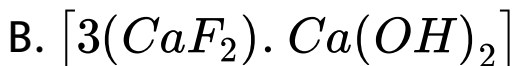
C. Anaerobic bacteria increases the BOD value.

D. Clean water has BOD value higher than 10 ppm

Answer: A

2. The recommended concentration of fluoride ion in drinking water is up to 1 ppm as fluoride ion is required to make teen enamel harder by converting $\left[3Ca_3(PO_4)_2 . Ca(OH)_2\right]$ to :

A. $\left[CaF_2\right]$

B. $\left[3(CaF_2) . Ca(OH)_2\right]$

C. $\left[3Ca_3(PO_4)_2 . CaF_2\right]$

D. $\left[3\{(Ca(OH)_2\}.CaF_2\right]$

Answer: C

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3. Identify the pollutant gases largely responsible for the discoloured and lustreless nature of marble of the Taj Mahal.

A. O_3 and CO_2

B. CO_2 and NO_2

C. SO_2 and NO_2

D. SO_2 and O_3

Answer: A::B::C::D

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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

A. only NO_3^-

B. both SO_4^{2-} and NO_3^-

C. only F^-

D. only SO_4^{2-}

Answer: A::B::C::D

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5. BOD stands for

A. Biochemical Oxidation Demand

B. Biological Oxygen Demand

C. Biochemical Oxygen Demand

D. Bacterial Oxidation Demand

Answer:

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6. Which one of the following substances used a dry cleaning is a better strategy to control environmental pollution

A. Sulphur dioxide

B. Carbon dioxide

C. Nitrogen doxide

D. Tetrachloroethylene

Answer: D

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7. 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

A. Nitrate

B. Iron

C. Fluoride

D. Lead

Answer: A

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8. Photochemical smog consists of excessive amount of X, in addition to aldehydes, ketones, peroxyacetyl nitrate (PAN), and so forthe X is:

    A. CO

    B. CH_4

    C. O_3

    D. CO_2

Answer: C

9. Addition of phosphate fertilisers to water bodies causes:

A. increase in amount of dissolved oxygen in water.

B. deposition of calcium phosphate

C. increase in fish population

D. enhanced growth of algae

Answer: D

10. Which of the following statements about the depiction of ozone layer is correct?

A. The problem of ozone depletion is less serious at poles because NO_2 solidifies and is not available for consuming ClO* radicals.

B. The problem of ozone depletion is more serious atpoles because ice crystals so

the clouds over poles act as catalyst for photochemical reactions involving the decomposition of ozone of Cl* and CTO* radicals

C. Freons, chlorofluorocarbons, are inert Chemically, they do not react with ozone in stratosphere.

D. Oxides of nitrogen also do not react with ozone in stratosphere.

Answer: C

Exercise 1 Concept Builder Topic 1 Air Pollution

1. Pollution is change in physical, chemical or biological characters of our land and water that may be:

    A. Desirable and harmful to human

    B. Desirable and useful to human

    C. Undesirable and harmful to human.

D. Undesirable and useful to human.

Answer: C

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2. Main pollutant from automobile exhaust is :

A. CO

B. CO_2

C. NO

D. hydrocarbons

Answer: B

3. Global warming is due to increase of

A. Methane and nitrous oxide in atmosphere

B. Methane and CO_2 in atmosphere

C. Methane and O_3 in atmosphere

D. Methane and CO in atmosphere

Answer: B

4. Which is related to "Green House Effect'?

    A. Farming of green plants

    B. Farming of vegetables in houses

    C. Global warming

    D. Biodegradable pollutant

Answer: C

5. The secondary precursors of photochemical smog are

A. SO_2 and NO_2

B. SO_2 and hydrocarbons.

C. NO_2 and hydrocarbons

D. O_3 and PAN

Answer: D

6. In almost all Indian metropolitan cities like Delhi, the major atmospheric pollutant(s) is/are

A. suspended particulate matter (SPM)

B. oxides of sulphur

C. carbon dioxide and carbon monoxide

D. oxides of nitrogen

Answer: A

7. In Antarctica vzone depletion is due to the formation of following compound

A. acrolein

B. peroxyacetyl nitrate

C. SO_2 and SO_3

D. chlorine nitrate

Answer:

8. Formation of London smog takes place in

A. winter during daytime

B. summer during day time

C. summer during among time.

D. winter during morning time

Answer: D

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9. The type of pollution caused by spraying of DDT is

    A. air and soil

    B. air and water

    C. air

    D. air, water and soil

Answer: A::C::D

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10. The green house effect is caused by

A. CO_2

B. NO_2

C. NO

D. CO

Answer: A::B::C

11. The gas reponsible for ozone depletion:

A. NO and freons

B. SO_2

C. CO_2

D. CO

Answer: A::B::D

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12. The main element of smog is

A. O_3 and PAN

B. O_3

C. PAN

D. PPN and PBN

Answer: A::C::D

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13. Which gas is responsible for 'Bhopal Gas Tragedy' in 1984?

    A. CO

    B. Methyl isocyante

    C. SO_2 and NO_2

    D. Ethyl isocyanate

Answer: B

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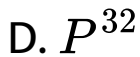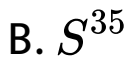**14.** CFC which is a min reason behind air pollution is produced by

A. sewage pollutant

B. Aerosola

C. industrial remains

D. all the these

Answer: B

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15. Which is a dangerous radiological pollutant?

A. C^{14}

B. S^{35}

C. Sr^{90}

D. P^{32}

Answer: C

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16. One free radical of chlorine can destroy molecules of ozone:

A. 100

B. 500

C. 250

D. 1000

Answer: D

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17. Which of the following is the coldest region of atmosphere

A. Thermosphere

B. Mesosphere

C. Troposphere

D. Stratosphere

Answer: B::C::D

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

A. thermosphere

B. stratosphere

C. troposphere

D. mesosphere

Answer: A::C

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19. The substance which is a primary pollutant?

A. H_2SO_4

B. CO

C. PAN

D. Aldehydes

Answer:

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20. Carbon monoxide (CO) is harmful to man because

    A. it forms carbolic acid

    B. generates excess CO_2

    C. it is carcinogenic

    D. it compete with O_2 for haemoglobin.

Answer: D

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21. Exposure of an organism to UV system cause

    A. photodynamic action.

    B. formation of thymidine.

    C. splitting of H-bonds of DNA.

    D. splitting of phosphodiester bonds.

Answer: C

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22. Photochemical smog formed in congested metropolitan cities mainly consists of :

A. Ozone, peroxyacetyl nitrate and NO_x

B. smoke, peroxyacetyl nitrate and SO_2

C. hydrocarbons, SO_2, and CO_2

D. hydrocarbons, ozone and SO_x

Answer: A

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23. The particulate matter is

A. HNO_3 droplets

B. soot

C. H_2SO_4 droplets

D. fly ash

Answer: A::B::C::D

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24. Air pollution causing plotochemical oxidants production include

   A. carbon monoxide and sulphur dioxide

   B. nitrous oxide, nitric acid fumes and nitric

   acid

   C. ozone, peroxyacetyl nitrate and

   aldehydes.

   D. oxygen, chlorine and fuming nitric acid.

Answer: C

25. the substance which is not regarded as a pollutant?

A. NO_2

B. CO_2

C. O_3

D. Hydrocarbons

Answer: A::B::C::D

26. In the coming years, skin related disorders will be more common due to :

    A. pollutants in air

    B. use of detergents
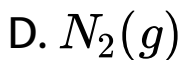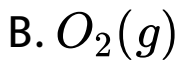
    C. water pollution

    D. depletion of ozone layer

Answer: D

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1. The gas which combine with haemoglobin to damage its oxygen carrying capacity is

  A. CO_2

  B. $O_2(g)$

  C. $CO(g)$

  D. $N_2(g)$

Answer: C

2. Which pollutant is harmful for "Tajmahal'?

    A. Hydrogen

    B. O_2

    C. SO_2

    D. Chlorine

Answer: C

3. Negative soil pollutant is

A. reduction in soil productivity due to erosion and over use.

B. reduction in soil productivity due to addition of pesticides and industrial wastes.

C. converting fertile land into barren land by dumping ash, sludge and garbage.

D. none of the above

Answer: A

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4. The quantity of DDT in food chain

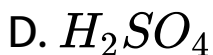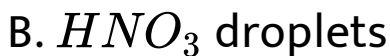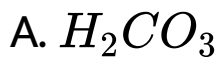   A. decreases

    B. remains same

    C. increases

    D. changes

Answer: C

5. The substance having the largest concentration in acid rain?

A. H_2CO_3

B. HNO_3 droplets

C. HCl

D. H_2SO_4

Answer: A::B::C::D

6. Water is often treated with chlorine to

A. remove hardness

B. increase oxygen content

C. kill gems

D. remove suspended particles

Answer: A::B::C::D

7. Thermal pollution affects mainly

    A. vegetation

    B. aquatic creature

    C. rocks

    D. air

Answer: A::B::C::D

8. Brewery and sugar factory waster alters the quality of a water body by increasing

    A. temperauture

    B. turbidity

    C. pH

    D. COD and BOD

Answer: D

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9. A dental disease characterised by motting of teeth is due to presence of a certain chemical element in drinking water. Which is that element?

A. Boron

B. Chlorine

C. Fluorine

D. Mercury

Answer: C

10. The high amount of E, coli in water is the

    A. hardness of water

    B. industrial pollution

    C. sewage pollution

    D. presence of chlorine in water

Answer: C

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11. A lake with an inflow of domestic sewage rich in organic waste may result in

   A. drying of the lake very soon due to algal bloom

   B. an increase production of fish due to lot of nutrients

   C. death of fish due to lack of oxygen

   D. increased population of aquatic food web organisms.

Answer: C

12. Lichens do not like to grow in cities

    A. because of absence of the right type of

       algae and fungi

    B. because of lack of moisture.

    C. because of SO_2 pollution.

    D. because natural habitat is missing.

Answer: C

13. Which of the following acts as a sink for CO?.

    A. Plants

    B. Haemoglobina

    C. Microorganisms present in the soil

    D. Oceans

Answer:

14. Phosphate fertilizers when added to water

leads to:

A. Increased growth of decomposers

B. Reduced algal growth.

C. Increased algal growth.

D. Nutrient enrichment (eutrophication)

Answer: D

15. Phosphate pollution is caused by

    A. sewage and agricultural fertilizers.

    B. weathering of phosphate rocks only

    C. Agriculutral fertilizers only

    D. phosphate rocks and sewage.

Answer: A::B::C::D

16. BHC and DDT act as:

A. Carcinogens

B. Allergens

C. Asthmatic agents

D. All of these

Answer: A

17. B.O.D. test is made for measuring

A. air pollution

B. water pollution

C. noise pollution

D. soil pollution

Answer: B

18. Which of the following trophic level has least concentration of toxins deposition ?

A. plant

B. Small fish

C. Human being

D. Largest fish

Answer: A::B::C::D

19. What is DDT among the following

A. Greenhouse gas

B. A fertilizer

C. Biodegradable pollutant

D. Non-biodegradable pollutant

Answer: A::B::D

20. In which one of the following the BOD (Biochemical Oxygen Demand) of sewage (S), distillery effluent (DE), paper mill effluent (PE) and sugar mill effluent (SE) have been arranged in ascending order ?

A. $SE < S < PE < DE$

B. $SE < PE < S < DE$

C. $PE < S < SE < DE$

D. $S < DE < PE < SE$

Answer: C

21. The agricultural field that produces maximum methane gas into atmoshpere is:

A. Wheat field

B. Paddy field

C. Cotton field

D. Groundnut Field

Answer:

▶

22. Disease caused by eating fish found in water contaminated with inductrial waste having mercury is:

A. Minamata disease

B. Bright's disease

C. Hashimoto's disease

D. Osteosclerosis

Answer: A

23. Ozone layer of stratosphere required protection from indiscriminate use of

A. Fungicides, insecticides, bactericides and medicines

B. Aerosols and high flying jets

C. Atomic explosions and industrial wastes

D. Weather balloons.

Answer: A::B::D

24. U.V. radiation from the sun causes a reaction in the atmosphere that leads to production of

   A. Fluorides

   B. carbon monoxide and sulphur dioxide

   C. Sulphur dioxide

   D. Ozone

Answer: D

Exercise 2 Concept Applicator

1. When rain is accompanied by a thunderstorm, the collected rain water will have a pH value

A. slightly lower than that of rain water without thunderstorm

B. slightly higher than that when the

thunderstorm is not there.

C. uninfluenced by occurrence of

thunderstorm.

D. which depends upon the amount of dust

in air.

Answer: A

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2. The irritant red haze in the traffic and congested places is due to presence of which of the following ?

(i) Oxides of sulphur

(ii) Oxides of nitrogen

(iii) Carbon dioxide

(iv) Mists, smoke and dust

(v) Smog

    A. (i), (iv) and (v)

    B. (iii) only

    C. (ii) only

D. (ii) and (v)

Answer: C

3. Increase in global temperature increases the incidence of which of the following infectious disease(s)?

(i) Sleeping sickness (ii) Yellow fever (iii) Malaria (iv) Dengue

A. (ii) only

B. (i) and (ii)

C. (iii) and (iv)

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

Answer: D

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4. Recent reports of acid rain in some industrial cities are due to the effect of atmospheric pollution by :

A. excessive release of NO_2 and SO_2 by burning of fossil fuels.

B. excessive release of CO_2 by burning of fuel like wood and charcoal, cutting of forests and increased animal population

C. excessive release of NH_3 by industrial plants and coal gas

D. excessive release of CO in atmosphere by incomplete combustionofcake, charcoal

and other carbonaceous lucls in paucity

of Oxygen.

Answer: A

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5. Which of the following statements is

wrong?

A. Ozone is produced in upper

stratosphere by the action of UV rays on

oxygen

B. Ozone can oxidise sulphur dioxide present in the atmosphere to sulphur trioxide

C. Ozone hole is thinking of ozone layer present in stratosphere

D. None of these

Answer: D

6. Photochemical smog consists of excessive amount of X, in addition to aldehydes, ketones, peroxyacetyl nitrate (PAN), and so forth X is:
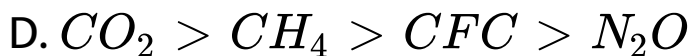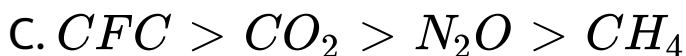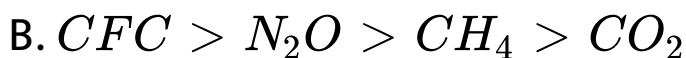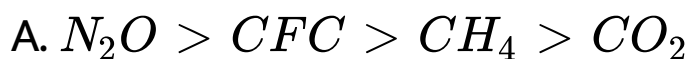
A. CO

B. CH_4

C. O_3

D. CO_2

Answer: C

7. Green house gases can be arranged in 'Global Warming Potential sequence as

A. $N_2O > CFC > CH_4 > CO_2$

B. $CFC > N_2O > CH_4 > CO_2$

C. $CFC > CO_2 > N_2O > CH_4$

D. $CO_2 > CH_4 > CFC > N_2O$

Answer: B::C::D

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8. In a coal fired power plant, electrostatic precipitators are installed to control emission of

A. SO_2

B. NO_x

C. SPM

D. CO

Answer: A::C::D

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9. The term "Bio-magnification" refers to the

A. growth of organisms due to food consumption.

B. increase in population size.

C. blowing up of environmental issues by man.

D. increase in the concentration of non-degradable pollutants as they pass through food chain.

Answer: D

10. 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 for bleaching purpose instead of using chlorine bascd 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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11. Which one of the following statements is not true?

A. Dissolved oxygen (DO) in cold water can reach a concentration upto 10 ppm.

B. Clean water would have a BOD value of 5 ppm..

C. Fluoride deficiency in drinking water is harmful. Soluble fluoride is often used to bring its concentration upto 1 ppm.

D. When the pH of rain water is higher than

6,5, it is called acid rain.

Answer: D

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12. Black-foot disease is caused due to groundwater contaminated with excess of

A. nitrate

B. fluoride

C. arsenie

D. sulphur

Answer: C

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13. Which one of the following statements is

correct

A. Extensive use fo chemical fertilizers may

led to eutrophication of nearby water

bodies.

B. Both Azotober and Rhizobium fix atmospheric nitrogen in root nodules of plants

C. Cyanobacteria such as Anabaena and Nostoc are important mobilizers of phosphates and potassium for plant nutrition in soil.

D. At present it is not possible to grow maize without chemical fertilizers.

Answer: A

14. Which of the following does not occur when the scawage is discharged into water ?

    A. Increase in O_2

    B. Cyanophycean blooms occur

    C. Depletion of O_2 layers

    D. Eutrophication

Answer: A

15. Which of the following metal is a water

pollutant and causes sterility in human being

A. As

B. Mn

C. Mg

D. Hg

Answer: B

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