Chapter 10

Environmental Issues

Solutions

SECTION - A

Objective Type Questions

(Air Pollution and its control)

1. _____ is highly hazardous to animal health but on plants this gas does not seen to show adverse effect.
   (1) CO (2) CO_2 (3) SO_2 (4) NO_2

Sol. Answer (1)

2. NO_x contributes to all, except
   (1) Secondary pollutant formation (2) Acid rains
   (3) Pheophytization (4) Photochemical smog

Sol. Answer (3)

NO_x does not contribute to pheophytization.

3. Which of the following device can control air pollution?
   (1) Scrubbers (2) Effluent treatment
   (3) Electrostatic precipitator (4) Both (1) & (3)

Sol. Answer (4)

Air pollution is controlled by scrubbers and electrostatic precipitation.

4. Acoustic zoning is related with
   (1) Soil pollution (2) Noise pollution (3) Water Pollution (4) Air pollution

Sol. Answer (2)

Acoustic zoning is related with noise pollution.

5. Which one of the following pair is not correctly matched?
   (1) NEERI – Nagpur
   (2) Byssinosis – Lung fibrosis due to iron particles
   (3) Hay fever – Skin allergy and asthma
   (4) Photochemical smog – Inhibits ETS

Sol. Answer (2)

Byssinosis caused by cotton dust.

6. Acid rain
   (a) Causes necrosis
   (b) Convert chlorophyll-a into phaeophytin
   (c) Responsible for formation of PAN
   (1) Only (a) and (b) are correct (2) Only (b) and (c) are correct
   (3) Only (a) is correct (4) Only (c) is correct

Sol. Answer (1)

Acid rain causes necrosis and converts chlorophylls into phaeophytin.

7. Which is not an effect of acidic rain in a pond?
   (1) Increased fungal growth (2) Decreased insect population
   (3) Increased growth of green algae (4) NO_3^- & SO_4^{2-} saturation

Sol. Answer (3)

Acid rain in pond decreased the growth of green algae.

8. A chemical weed in troposphere and protectant in stratosphere is
   (1) CH_4 (2) O_3 (3) CFC (4) NO_2

Sol. Answer (2)

A chemical weed in trophosphere and protection in stratosphere is ozone.

(Water Pollution and its control)

9. Eutrophication includes all, except
   (1) Heavy growth of BGA (2) Decreased DO
   (3) Death of submerged organism (4) Finally decreased COD

Sol. Answer (4)

Eutrophication finally increased COD (Chemical Oxygen Demand).

10. Presence of *E.coli* in water indicates
    (1) Water is clear (2) Water is fully polluted (3) Inorganic pollution (4) Faecal pollution

Sol. Answer (4)

Presence of *Escherichia coli* in waste indicates faecal pollution.

11. Release of phosphates and nitrates in water bodies (*i.e.*, in rivers and lakes) leads to
    (1) Nutrient enrichment (eutrophication) (2) Reduced algal growth
    (3) Increased algal growth (4) Increased growth of decomposers

Sol. Answer (3)

Release of phosphate and nitrates in water bodies causes eutrophication that lead the increased algal growth.

12. Select the correct statement from the following
    (1) A mere 0.1% impurities cannot make domestic sewage unfit for human use
    (2) High concentrations of DDT disturb calcium metabolism in birds.
    (3) Phaeophytization in lichens is caused due to nitrogen oxides
    (4) 'Bad' ozone as well as 'good' ozone both are found in the upper part of the atmosphere.

Sol. Answer (2)

High concentration of DDT disturb calcium metabolism in birds due to biomagnification.

13. Water pollution is best assessed by determining
(1) DO (2) BOD and turbidity
(3) DO and acidity (4) Hardness and alkalinity

Sol. Answer (2)

Water pollution is best monitored by BOD and turbidity.

14. Non-point source of water pollution is
(1) Sewage outlet (2) Effluents from a factory
(3) Agricultural runoff (4) All of these

Sol. Answer (3)

Non-point source of water pollution is agricultural runoff.

15. DO(dissolved O_2) of water _____ with an increase in temperature.
(1) Decreases (2) Increases
(3) Remains constant (4) First increases then decreases

Sol. Answer (1)

Dissolved oxygen of water decreases with an increase in temperature.

16. Oil slick causes mass scale death of fishes due to
(1) Clogging of gills (2) Disruption of food chain
(3) Non-availability of food (4) All of these

Sol. Answer (1)

Oil slick causes mass scale death of fishes due to clogging of gills.

17. Prolonged water logging in an agricultural fields is likely to create the problem of
(1) Poor aeration and low salinity (2) Poor aeration and high salinity
(3) Poor aeration and high acidity (4) Metal toxicity and proper aeration

Sol. Answer (2)

Prolonged water logging in an agricultural fields is likely to create the problem of poor aeration and high salinity.

(Solid Wastes)

18. Spraying of pesticide is an example of
(1) Point source water pollution (2) Diffuse water pollution
(3) Both (1) & (2) (4) Pyrolysis

Sol. Answer (2)

Spraying of pesticides is an example of diffuse water pollution.

19. Which one of the following pairs is not correctly matched?
(1) Production of sulphur dioxide – Burning of coal
(2) Depletion of ozone layer – Release of CFCs in the atmosphere
(3) Eutrophication – Increase in nitrogen and phosphorus content in aquatic bodies
(4) Decrease in BOD of pond water – Increase in global temperature

Sol. Answer (4)

Decreased in BOD of pond water, decreases water pollution.

20. The controlled aerobic combustion of wastes inside chambers at temperature of 900-1300ºC is known as

(1) Incineration (2) Recycling

(3) Pyrolysis (4) Sanitary dumping

Sol. Answer (1)

Incineration – Aerobic combustion at 850°C to 1000°C.

Pyrolysis – Anaerobic combustion at 1650°C.

21. Wastes may be sealed in concrete-filled drums and discharged to a depth of about 500 m. This specific statement is true for

(1) γ-radiation pollutants (2) U.V. radiation pollutants

(3) β-particle pollutants (4) All radioactive pollutants

Sol. Answer (4)

All radioactive pollutants may be sealed in concrete filled drums and wastes discharged to a depth of about 500 m.

22. Select the incorrect statement for e-wastes

(1) Recycling is the only solution for treatment

(2) They are buried in landfills or incinerated

(3) Bulk of the waste is biodegradable

(4) Used to recover metals like copper, iron, silicon, nickel and gold

Sol. Answer (3)

e-wastes is non-biodegradable.

(Agro-chemical and their Effects)

23. Blue-baby syndrome is due to the

(1) Air pollution (2) Water pollution (3) Thermal pollution (4) Radioactive pollution

Sol. Answer (2)

Blue-baby syndrome is due to water pollution in which nitrites combined with haemoglobin and causes serious disease, also called methemoglobinemia.

(Greenhouse Effect and Global Warming)

24. Which is not an effect of global warming?

(1) More extreme weather condition (2) Poleward shifting of organism

(3) Rise of sea level (4) Good fungal growth in soil

Sol. Answer (4)

Global warming does not affect good fungal growth in soil.

25. Arrange CFC, CH_4, N_2O and CO_2 in decreasing order according to their contribution in green house effect

(1) $CO_2 > N_2O > CFC > CH_4$ (2) $CFC > CO_2 > CH_4 > N_2O$

(3) $CH_4 > CFC > N_2O > CO_2$ (4) $CO_2 > CH_4 > CFC > N_2O$

Sol. Answer (4)

$CO_2 > CH_4 > CFC > N_2O$ decreasing order of green house gases according to their contribution.

26. Consider the following statements and select correct set w.r.t. global warming

(a) El Nino effect
(b) Cooling of stratosphere and earth surface
(c) Shifting of climatic zones
(d) Snow blindness
(e) Inpairment of hearing
(f) Excessive deposition of ice at poles
(g) Rise in sea level
(h) Increase in eutrophication

(1) a, c, e, g & h
(2) a, c, d, e, f & g
(3) a, b, c, d, f & h
(4) a, c & g

Sol. Answer (4)

Global warming leads El-nino effect, shifting of climatic zone and rise in sea level.

27. Green house gases are

(1) Absorbers of long-wave radiations from earth
(2) Transparent to both solar radiations and long-wave radiations from earth
(3) Absorbers of solar radiations for warming the atmosphere
(4) Transparent to emissions from earth for passage into outer space

Sol. Answer (1)

Green house gases absorb of long-wave radiations (infrared) from earth.

28. Which of the following conference obtained commitments from different countries for reducing overall green house gas emission at a level 5% below 1990 level by 2008-2012?

(1) Kyoto Protocol, 1997
(2) Earth Summit, Rio-de-Janeiro, 1992
(3) Montreal Protocol, 1987
(4) Helsinki Declaration, 1989

Sol. Answer (1)

Kyoto Protocol, 1997

(Ozone Depletion in The Stratosphere)

29. Select incorrect one

(1) I.A.P. – Indian Atmospheric Pollution
(2) U.N.E.P. – United Nation's Environment Programme
(3) C.C.C. – Convention on Climate Change
(4) O.D.P. – Ozone Depleting Potential

Sol. Answer (1)

I.A.P. stands for Index of Air Pollution.

30. The e-wastes

(1) Represents municipal solid
(2) Is produced in developing countries and exported to developed countries
(3) Are buried in land fills or incinerated
(4) Does not involve recycling

Sol. Answer (3)

The e-wastes are buried in land fills or incinerated for recycling.

31. Which one of the following was the objective of signing the 'Montreal protocol'?

(1) Protection of wild life

(2) Protection of ozone layer

(3) Control of noise pollution

(4) Control the over use of insecticides

Sol. Answer (2)

Signing the Montreal Protocol related with protection of ozone layer, at Montreal Canada in 1987.

32. Match the column-I with column II

Column-I	**Column-II**
a. Pyrolysis	(i) Methaeglobinemia
b. Carbon monoxide	(ii) Chronic exposure to arsenic
c. Blue baby syndrome	(iii) Asphyxia and giddiness
d. Black foot disease	(iv) Disposal of hospital waste

(1) a(iv), b(i), c(ii), d(iii)

(2) a(i), b(iii), c(iv), d(ii)

(3) a(iv), b(iii), c(i), d(ii)

(4) a(iv), b(iii), c(i), d(ii)

Sol. Answer (4)

Pyrolysis – Disposal of hospital waste

Carbon monoxide – Asphyxia and giddiness

Blue baby syndrome – Methamoglobinemia

Black foot disease – Chronic exposure to arsenic

33. Agenda-21 was adopted in

(1) Kyoto protocol (2) Earth summit (3) Helsinki declaration (4) Montreal protocol

Sol. Answer (2)

(Degradation by Improper Resource Utilisation and Maintenance)

34. Reduction in soil fertility due to erosion is an example of

(1) Positive pollution (2) Negative pollution (3) Third pollution (4) Landscape pollution

Sol. Answer (2)

Reduction of soil fertility due to erosion is an example of negative pollution.

35. Which of the following pollutant accumulates in the bones, replaces calcium and may cause bone cancer?

(1) Strontium - 90 (2) CO (3) NO_x (4) SPM

Sol. Answer (1)

36. Black foot disease is due to

(1) Oil spills (2) Arsenic (3) Copper (4) Mercury

Sol. Answer (2)

Black foot disease is due to Arsenic.

SECTION - B

Previous Years Questions

1. Which of the following statements about ozone is correct? **[NEET-2019 (Odisha)]**

   (1) Stratospheric ozone protects us from UV radiations

   (2) Tropospheric ozone protects us from UV radiations

   (3) Stratospheric ozone is 'bad'

   (4) Tropospheric ozone is 'good'

Sol. Answer (1)

Ozone, in our atmosphere is found in two layers

1. Stratosphere – good ozone, protects us from UV radiations
2. Troposphere – bad ozone, considered as a pollutant.

2. Which of the following is an innovative remedy for plastic waste? **[NEET-2019 (Odisha)]**

   (1) Electrostatic precipitator

   (2) Burning in the absence of oxygen

   (3) Burying 500 m deep below soil surface

   (4) Polyblend

Sol. Answer (4)

Polyblend is an innovative remedy of plastic waste. Polyblend is fine powder of recycled plastic waste that after mixing with bitumen, used to lay roads.

3. If an agricultural field is liberally irrigated for a prolonged period of time, it is likely to face a problem of **[NEET-2019 (Odisha)]**

   (1) Salinity (2) Metal toxicity (3) Alkalinity (4) Acidity

Sol. Answer (1)

Irrigation of agricultural field for a prolonged time without proper drainage leads to waterlogging in the soil. Waterlogging draws salt to the surface of the soil and causes salinity.

4. Which of the following pairs of gases is mainly responsible for green house effect? **[NEET-2019]**

   (1) Ozone and Ammonia

   (2) Oxygen and Nitrogen

   (3) Nitrogen and Sulphur dioxide

   (4) Carbon dioxide and Methane

Sol. Answer (4)

Relative contribution of various greenhouse gases to global warming is

- CO_2 = 60%
- CH_4 = 20%
- CFC = 14%
- N_2O = 6%

$\Rightarrow$ Therefore CO_2 and CH_4 are the major greenhouse gases

5. Which of the following protocols did aim for reducing emission of chlorofluorocarbons into the atmosphere? **[NEET-2019]**

(1) Montreal Protocol (2) Kyoto Protocol

(3) Gothenburg Protocol (4) Geneva Protocol

Sol. Answer (1)

To control the deleterious effect of the stratospheric ozone depletion an international treaty was signed at Montreal, Canada in 1987. It is popularly known as Montreal protocol.

6. Polyblend, a fine powder of recycled modified plastic, has proved to be a good material for **[NEET-2019]**

(1) Making plastic sacks (2) Use as a fertilizer

(3) Construction of roads (4) Making tubes and pipes

Sol. Answer (3)

Polyblend is a fine powder of recycled modified plastic waste. The mixture is mixed with bitumen that is used to lay roads

7. Which of these following methods is the most suitable for disposal of nuclear waste? **[NEET-2019]**

(1) Shoot the waste into space

(2) Bury the waste under Antarctic ice-cover

(3) Dump the waste within rocks under deep ocean

(4) Bury the waste within rocks deep below the Earth's surface

Sol. Answer (4)

Storage of nuclear waste should be done in suitably shielded containers and buried within rocks deep below the earth's surface (500 m deep)

8. Match the items given in **Column I** with those in **Column II** and select the **correct** option given below : **[NEET-2018]**

	Column-I		**Column-II**
a.	Eutrophication	i.	UV-B radiation
b.	Sanitary landfill	ii.	Deforestation
c.	Snow blindness	iii.	Nutrient enrichment
d.	Jhum cultivation	iv.	Waste disposal

	a	**b**	**c**	**d**
(1)	ii	i	iii	iv
(2)	i	iii	iv	ii
(3)	i	ii	iv	iii
(4)	iii	iv	i	ii

Sol. Answer (4)

a.	Eutrophication	iii.	Nutrient enrichment
b.	Sanitary landfill	iv.	Waste disposal
c.	Snow blindness	i.	UV-B radiation
d.	Jhum cultivation	ii.	Deforestation

9. In stratosphere, which of the following elements acts as a catalyst in degradation of ozone and release of molecular oxygen? **[NEET-2018]**

(1) Carbon (2) Cl

(3) Oxygen (4) Fe

Sol. Answer (2)

UV rays act on CFCs, releasing Cl atoms, chlorine reacts with ozone in sequential method converting into oxygen

Carbon, oxygen and Fe are not related to ozone layer depletion

10. Which of the following is a secondary pollutant? **[NEET-2018]**

(1) CO (2) CO_2

(3) O_3 (4) SO_2

Sol. Answer (3)

O_3 (ozone) is a secondary pollutant. These are formed by the reaction of primary pollutant.

CO – Quantitative pollutant

CO_2 – Primary pollutant

SO_2 – Primary pollutant

11. World Ozone Day is celebrated on **[NEET-2018]**

(1) 5th June (2) 21st April

(3) 22nd April (4) 16th September

Sol. Answer (4)

World Ozone day is celebrated on 16th September.

5th June - World Environment Day

21st April - National Yellow Bat Day

22nd April - National Earth Day

12. Which one of the following statements is not valid for aerosols? **[NEET-2017]**

(1) They are harmful to human health

(2) They alter rainfall and monsoon patterns

(3) They cause increased agricultural productivity

(4) They have negative impact on agricultural land

Sol. Answer (3)

Aerosols can cause various problems to agriculture through its direct or indirect effects on plants. However continually increasing air pollution may represent a persistent and largely irreversible threat to agriculture in the future.

13. Biochemical Oxygen Demand (BOD) may **not** be a good index for pollution for water bodies receiving effluents from **[NEET(Phase-2)-2016]**

(1) Domestic sewage (2) Dairy industry (3) Petroleum industry (4) Sugar industry

Sol. Answer (3)

Biochemical oxygen demand (BOD) is not a good index for pollution for water bodies receiving effluents from petroleum industry as the generated waste is mostly non-biodegradable in nature.

14. A lake which is rich in organic waste may result in **[NEET(Phase-2)-2016]**

(1) Increased population of aquatic organisms due to minerals

(2) Drying of the lake due to algal bloom

(3) Increased population of fish due to lots of nutrients

(4) Mortality of fish due to lack of oxygen

Sol. Answer (4)

Micro-organisms involved in biodegradation of organic matter consume oxygen as a result there is a sharp decline in oxygen causing mortality of fish and other aquatic creatures.

15. The highest DDT concentration in aquatic food chain shall occur in **[NEET(Phase-2)-2016]**

(1) Phytoplankton

(2) Seagull

(3) Crab

(4) Eel

Sol. Answer (2)

Maximum DDT concentration occurs in fish eating birds like *Seagull* due to biomagnification. This happens because a toxic substance accumulated by an organism cannot be metabolised or excreted, thus passed to higher trophic level.

16. A river with an inflow of domestic sewage rich in organic waste may result in **[NEET-2016]**

(1) Death of fish due to lack of oxygen

(2) Drying of the river very soon due to algal bloom

(3) Increased population of aquatic food web organisms

(4) An increased production of fish due to biodegradable nutrients

Sol. Answer (1)

A river with an inflow of domestic sewage rich in organic waste will reduce the dissolved oxygen (DO) and may result in death of fish due to lack of oxygen.

17. Joint Forest Management Concept was introduced in India during **[NEET-2016]**

(1) 1990s (2) 1960s (3) 1970s (4) 1980s

Sol. Answer (4)

Joint Forest Management Concept was introduced in India during 1980s by the Government of India to work closely with the local communities for protecting and managing forests.

18. Eutrophication of water bodies leading to killing of fishes is mainly due to non-availability of **[Re-AIPMT-2015]**

(1) Oxygen (2) Food (3) Light (4) Essential minerals

Sol. Answer (1)

During eutrophication of water bodies, BOD level increases due to rapid growth of microbes.

19. Acid rain is caused by increase in the atmospheric concentration of : **[Re-AIPMT-2015]**

(1) O_3 and dust (2) SO_2 and NO_2 (3) SO_3 and CO (4) CO_2 and CO

Sol. Answer (2)

During rainfall, SO_2 and NO_2 can decrease the pH of rain water.

20. Increase in concentration of the toxicant at successive trophic levels is known as: **[Re-AIPMT-2015]**

(1) Biogeochemical cycling

(2) Biomagnification

(3) Biodeterioration

(4) Biotransformation

Sol. Answer (2)

21. The UN conference of Parties on climate change in the year 2012 was held at **[Re-AIPMT-2015]**

(1) Warsaw (2) Durban (3) Doha (4) Lima

Sol. Answer (3)

The United Nations Climate change conferences are yearly conferences and are known as Conference of the Parties(COP).

In 2012 it was held in Doha, Qatar.

22. High value of BOD (Biochemical Oxygen Demand) indicates that **[AIPMT-2015]**

(1) Consumption of organic matter in the water is higher by the microbes

(2) Water is pure

(3) Water is highly polluted

(4) Water is less polluted

Sol. Answer (3)

High value of BOD indicates that water is highly polluted. It is the indirect measure of the organic matter present in the water.

23. The UN Conference of Parties on climate change in the year 2011 was held in **[AIPMT-2015]**

(1) Qatar (2) Poland (3) South Africa (4) Peru

Sol. Answer (3)

The UN Conference of Parties on climate change in the year 2011 was held in Durban, South Africa.

24. Rachel Carson's famous book "Silent Spring" is related to **[AIPMT-2015]**

(1) Ecosystem management

(2) Pesticide pollution

(3) Noise pollution

(4) Population explosion

Sol. Answer (2)

Pesticides, *i.e.*, DDT (Biomagnification) related book.

25. A scrubber in the exhaust of a chemical industrial plant removes **[AIPMT-2014]**

(1) Gases like sulphur dioxide

(2) Particulate matter of the size 5 micrometer or above

(3) Gases like ozone and methane

(4) Particulate matter of the size 2.5 micrometer or less

Sol. Answer (1)

Scrubber removes sulphur dioxide from the exhaust of chemical industrial plant.

26. A location with luxuriant growth of lichens on the trees indicates that the **[AIPMT-2014]**

(1) Trees are very healthy (2) Trees are heavily infested

(3) Location is highly polluted (4) Location is not polluted

Sol. Answer (4)

Lichens do not grow in SO_2 polluted regions.

27. The zone of atomosphere in which the ozone layer is present is called **[AIPMT-2014]**

(1) Ionosphere (2) Mesophere (3) Stratosphere (4) Troposphere

Sol. Answer (3)

Stratosphere contains ozone layer.

28. Global warming can be controlled by **[NEET-2013]**

(1) Reducing reforestation, increasing the use of fossil fuel

(2) Increasing deforestation, slowing down the growth of human population

(3) Increasing deforestation, reducing efficiency of energy usage

(4) Reducing deforestation, cutting down use of fossil fuel

Sol. Answer (4)

Global warming can be controlled by reducing deforestation and cutting down use of fossil fuel.

29. The Air Prevention and Control of Pollution Act came into force in **[NEET-2013]**

(1) 1981 (2) 1985 (3) 1990 (4) 1975

Sol. Answer (1)

The Air Prevention and Control of Pollution Act came into force in 1981.

30. Kyoto Protocol was endorsed at **[NEET-2013]**

(1) CoP - 5 (2) CoP - 6 (3) CoP - 4 (4) CoP - 3

Sol. Answer (4)

Kyoto Protocol was endorsed at CoP-3.

31. Which one of the following is a **wrong** statement? **[AIPMT (Prelims)-2012]**

(1) Greenhouse effect is a natural phenomenon

(2) Eutrophication is a natural phenomenon in freshwater bodies

(3) Most of the forests have been lost in tropical areas

(4) Ozone in upper part of atmosphere is harmful to animals

Sol. Answer (4)

Ozone in upper part of atmosphere is called good ozone and it acts as a shield, absorbing UV radiation from sun.

32. In an area where DDT has been used extensively. the population of birds declined significantly because **[AIPMT (Prelims)-2012]**

(1) Cobras were feeding exclusively on birds (2) Many of the birds eggs laid, did not hatch

(3) Birds stopped laying eggs (4) Earthworms in the area got eradicated

Sol. Answer (2)

Birds eggs are laid, but they did not hatch due to interference of DDT with calcium metabolism. This causes thin egg shells which breaks before hatching.

33. Which one of the following statements is **wrong** in case of Bhopal tragedy? **[AIPMT (Prelims)-2011]**

(1) It took place in the night of December 2/3, 1984

(2) Methyl Isocyanate gas leakage took place

(3) Thousands of human beings died

(4) Radioactive fall out engulfed Bhopal

Sol. Answer (4)

It was not radioactive radiation release.

34. Which one of the following pairs of gases are the major cause of "Greenhouse effect"? **[AIPMT (Prelims)-2011]**

(1) CO_2 and N_2O (2) CO_2 and O_3 (3) CO_2 and CO (4) CFCs and SO_2

Sol. Answer (1)

35. "Good ozone" is found in the **[AIPMT (Mains)-2011]**

(1) Stratosphere (2) Ionosphere (3) Mesosphere (4) Troposphere

Sol. Answer (1)

Good ozone is found in stratosphere.

36. Eutrophication is often seen in: **[AIPMT (Prelims)-2011]**

(1) Mountains (2) Deserts (3) Fresh water lakes (4) Ocean

Sol. Answer (3)

Eutrophication is often seen in fresh water lakes.

37. The two gases making highest relative contribution to the greenhouse gases are **[AIPMT (Prelims)-2010]**

(1) CO_2 and N_2O (2) CO_2 and CH_4 (3) CH_4 and N_2O (4) CFC_5 and N_2O

Sol. Answer (2)

CO_2 60% and CH_4 20%.

38. When domestic sewage mixes with river water **[AIPMT (Mains)-2010]**

(1) Small animals like rats will die after drinking river water

(2) The increased microbial activity releases micronutrients such as iron

(3) The increased microbial activity uses up dissolved oxygen

(4) The river water is still suitable for drinking as impurities are only about 0.1%

Sol. Answer (3)

When domestic sewage mixes with river water the increased microbial activity uses up DO of river is immediate environment.

39. dB is a standard abbreviation used for the quantitative expression of **[AIPMT (Prelims)-2010]**

(1) A certain pesticide

(2) The density of bacteria in a medium

(3) A particular pollutant

(4) The dominant *Bacillus* in a culture

Sol. Answer (3)

dB (decibel) is unit for measurement of quantitative expression of a noise pollutant.

40. Global agreement in specific control strategies to reduce the release of ozone depleting substances, was adopted by: **[AIPMT (Prelims)-2009]**

(1) The Montreal Protocol

(2) The Koyoto Protocol

(3) The Vienna Convention

(4) Rio de Janeiro Conference

Sol. Answer (1)

41. Steps taken by the Government of India to control air pollution include: **[AIPMT (Prelims)-2009]**

(1) Compulsory PUC (Pollution Under Control) certification of petrol driven vehicles which tests for carbon monoxide and hydrocarbons.

(2) Permission to use only pure diesel with a maximum of 500 ppm sulphur as fuel for vehicles.

(3) Use of non-polluting Compressed Natural Gas (CNG) only as fuel by all buses and trucks.

(4) Compulsory mixing of 20% ethyl alcohol with petrol and 20% biodiesel with diesel.

Sol. Answer (1)

Government of India have taken steps to control air pollution by certification of petrol driven vehicals which tests for CO and hydrocarbons.

42. Montreal Protocol aims at **[AIPMT (Prelims)-2009]**

(1) Biodiversity conservation (2) Control of water pollution

(3) Control of CO_2 emission (4) Reduction of ozone depleting substances

Sol. Answer (4)

Montreal Protocol aims at reduction of ozone depleting substances.

43. Biochemical Oxygen Demand (BOD) in a river water: **[AIPMT (Prelims)-2009]**

(1) Has no relationship with concentration of oxygen in the water.

(2) Gives a measure of *Salmonella* in the water.

(3) Increases when sewage gets mixed with river water.

(4) Remains unchanged when algal bloom occurs.

Sol. Answer (3)

BOD in river water increases when sewage gets mixed with river water.

44. Chipko movement was launched for the protection of : **[AIPMT (Prelims)-2009]**

(1) Forests (2) Livestock (3) Wet lands (4) Grasslands

Sol. Answer (1)

Chipko Movement is related with protection of forest.

45. DDT residues are rapidly passed through food chain causing biomagnification because DDT is: **[AIPMT (Prelims)-2009]**

(1) Moderately toxic (2) Non-toxic to aquatic animals

(3) Water soluble (4) Lipo soluble

Sol. Answer (4)

DDT is lipid soluble.

46. Which one of the following is the **correct** percentage of the two (out of the total of 4) green house gases that contribute to the total global warming? **[AIPMT (Prelims)-2008]**

(1) Methane 20%, N_2O 18%

(2) CFCs14%, Methane 20%

(3) CO_2 40%, CFSs 30%

(4) N_2O 6%, CO_2 86%

Sol. Answer (2)

CFCs 14%, Methane 20%

47. World summit on Sustainable Development (2002) was held in **[AIPMT (Prelims)-2008]**

(1) South Africa (2) Brazil (3) Sweden (4) Argentina

Sol. Answer (1)

48. According to Central Pollution Control Board (CPCB), which particulate size in diameter (in micrometers) of the air pollutants is responsible for greatest harm to human health? **[AIPMT (Prelims)-2008]**

(1) 5.2 - 2.5 (2) 2.5 or less (3) 1.5 or less (4) 1.0 or less

Sol. Answer (2)

2.5 μm or less forms suspended particles in air.

49. A lake near a village suffered heavy mortality of fishes within a few days. Consider the following reasons for this

(a) Lots of urea and phosphate fertilizer were used in the crops in the vicinity.

(b) The area was sprayed with DDT by an aircraft

(c) The lake water turned green and stinky.

(d) Phytoplankton populations in the lake declined initially thereby greatly reducing photosynthesis.

Which two of the above were the main causes of fish mortality in the lake? **[AIPMT (Prelims)-2008]**

(1) a, b (2) b, c (3) c, d (4) a, c

Sol. Answer (4)

Mortality of fishes in water bodies is due to

- ❖ Eutrophication
- ❖ The lake water turned green (BGA) and stinky *i.e.* strong unpleasent smell.

50. 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? **[AIPMT (Prelims)-2007]**

(1) S < DE < PE < SE (2) SE < S < PE < DE

(3) SE < PE < S < DE (4) PE < S < SE < DE

Sol. Answer (2)

PE < S < SE < DE

51. In a coal fires power plant electrostatic precipitators are installed to control emission of **[AIPMT (Prelims)-2007]**

(1) CO (2) SO_2 (3) NO_X (4) SPM

Sol. Answer (4)

Suspended Particulate Matter.

52. Which one of the following is not a bioindicator of water pollution? **[AIPMT (Prelims)-2007]**

(1) Sewage fungus (2) Sludge-worms (3) Blood-worms (4) Stone flies

Sol. Answer (4)

53. Montreal protocol which calls for appropriate action to protect the ozone layer from human activities was passed in the year **[AIPMT (Prelims)-2006]**

(1) 1986 (2) 1987 (3) 1988 (4) 1985

Sol. Answer (2)

54. Photochemical smog pollution does not contain **[AIPMT (Prelims)-2006]**

(1) Ozone (2) Nitrogen dioxide

(3) Carbon dioxide (4) PAN (Peroxy Acyl Nitrate)

Sol. Answer (3)

Photochemical smog contains O_3, PAN & N_2O.

55. Limit of BOD prescribed by Central Pollution Control Board for the discharge of industrial and municipal waste water into natural surface water, is **[AIPMT (Prelims)-2006]**

(1) < 3.0 ppm (2) < 10 ppm (3) < 100 ppm (4) < 30 ppm

Sol. Answer (4)

56. More than 70% of world's freshwater is contained in: **[AIPMT (Prelims)-2005]**

(1) Antarctica (2) Glaciers and Mountains

(3) Greenland (4) Polar ice

Sol. Answer (4)

57. Which one of the following pairs is **mismatched** ? **[AIPMT (Prelims)-2005]**

(1) Biomass burning — release of CO_2 (2) Fossil fuel burning — release of CO_2

(3) Nuclear power — radioactive wastes (4) Solar energy — green house effect

Sol. Answer (4)

Solar energy — green house effect

58. Identify the **correctly** matched pair **[AIPMT (Prelims)-2005]**

(1) Montreal protocol - Global warming (2) Kyoto protocol - Climatic change

(3) Ramsar convention - Ground water pollution (4) Basal convention - Biodiversity conservation

Sol. Answer (2)

59. Which of the following **is not** used for disinfection of drinking water ? **[AIPMT (Prelims)-2005]**

(1) Phenyl (2) Chloramine (3) Chlorine (4) Ozone

Sol. Answer (1)

60. Prolonged liberal irrigation of agricultural fields is likely to create the problem of **[AIPMT (Prelims)-2005]**

(1) Acidity (2) Aridity (3) Metal toxicity (4) Salinity

Sol. Answer (4)

61. The toxic effect of carbon monoxide is due to its greater affinity for haemoglobin as compared to oxygen approximately by

(1) 200 times (2) 1000 times (3) 2 times (4) 20 times

Sol. Answer (1)

Carbon monoxide has 200 times more affinity for haemoglobin than oxygen.

62. Which of the following is a secondary pollutant?

(1) PAN (2) Aerosol (3) CO (4) CO_2

Sol. Answer (1)

Peroxy Acetyl Nitrate (PAN) is a secondary pollutant.

63. Which one of the following is **not** correct as regards the harmful effects of particulate matter of the size 2.5 micro meters or less?

(1) It can be inhaled into the lungs

(2) It can cause respiratory problems

(3) It can directly enter into our circulatory system

(4) It can cause inflammation and damage to the lungs

Sol. Answer (3)

2.5 μm/less particles cannot directly enter into our circulatory system.

64. Which is the result of damage to relative biological effectiveness?

(1) High temperature (2) Pollution (3) Radiation (4) Low temperature

Sol. Answer (2)

65. The domestic sewage in large cities

(1) Has a high BOD as it containing both aerobic and anaerobic bacteria

(2) Is processed by aerobic and then anaerobic bacteria in the secondary treatment in Sewage Treatment Plants (STPs)

(3) When treated in STPs does not really require the aeration step as the sewage contains adequate oxygen

(4) Has very high amounts of suspended solids and dissolved salts

Sol. Answer (2)

Sewage polluted water is processed by aerobic and then anaerobic bacteria in secondary treatment in Sewage Treatment Plants.

66. Which among the following is likely to have the highest levels of D.D.T. depositions in its body?

(1) Seagull (2) Phytoplankton (3) Eel (4) Crab

Sol. Answer (1)

Seagull.

67. Sounds above what level are considered hazardous noise pollution?

(1) Above 80 dB (2) Above 30 dB (3) Above 150 dB (4) Above 120 dB

Sol. Answer (1)

Sound above 80 dB is hazardous, (noise pollution).

68. A disease caused by eating fish contaminated by industrial waste containing mercury compounds, is called
(1) Osteosclerosis
(2) Hashimoto's disease
(3) Bright's disease
(4) Minimata disease

Sol. Answer (4)

69. When huge amount of sewage is dumped into a river, its B.O.D. will
(1) Slightly decrease (2) Remain unchanged (3) Increase (4) Decrease

Sol. Answer (3)

BOD will increase due to consumption of oxygen by aerobic bacteria.

70. The Taj Mahal is threatened due to the effect of
(1) Oxygen (2) Hydrogen (3) Chlorine (4) Sulphur-dioxide

Sol. Answer (4)

The Taj Mahal is threatened due to the effect of sulphur dioxide.

71. In Minamata Bay of Japan the animals which remained free from minamata disease, are
(1) Dogs (2) Cats (3) Pigs (4) Rabbits

Sol. Answer (4)

Rabbits because they are herbivores.

72. Which of the following isotopes is most dangerous *to Homo sapiens*?
(1) Phosphorus-32 (2) Strontium-90 (3) Caesium-137 (4) Iodine-131

Sol. Answer (2)

Strontium-90, because it replaces Ca in bones and causes bone cancer and leukemia.

73. The most common indicator organism that represents polluted water is
(1) *C. vibrio*
(2) *Entamoeba histolytica*
(3) *E. coli*
(4) *P. typhi*

Sol. Answer (3)

Polluted water indicator is *E. coli* which is most common organism in polluted water.

74. Phosphate pollution is caused by
(1) Sewage and phosphate rock (2) Sewage and agricultural fertilizers
(3) Phosphate rock only (4) Agricultural fertilizers only

Sol. Answer (2)

Phosphate pollution is caused by sewage and agricultural fertilizers.

75. The minamata disease in Japan was caused through the pollution of water by

(1) Cyanide (2) Methyl isocyanate (3) Lead (4) Mercury

Sol. Answer (4)

76. D.D.T. is

(1) Not a pollutant (2) An antibiotic

(3) A non-biodegradable pollutant (4) A biodegradable pollutant

Sol. Answer (3)

D.D.T. is a non-biodegradable pollutant.

77. The maximum biomagnification would be in which of the following in case of aquatic ecosystem?

(1) Zooplanktons (2) Phytoplanktons (3) Fishes (4) Kelps

Sol. Answer (3)

Fishes have maximum biomagnification in aquatic ecosystem.

78. What is B.O.D.?

(1) The amount of O_2 utilised by organisms in water

(2) The amount of O_2 utilized by microorganisms for decomposition

(3) The total amount of O_2 present in water

(4) All of these

Sol. Answer (2)

BOD is amount of O_2 for utilization by microbes and decompose the organic wastes.

79. Which of the following is absent in polluted water?

(1) *Hydrilla* (2) Water hyacinth (3) Larva of stonefly (4) Blue green algae

Sol. Answer (3)

80. What is the intensity of sound in normal conversation?

(1) 10-20 decibel (2) 30-60 decibel (3) 70-90 decibel (4) 120-150 decibel

Sol. Answer (2)

The intensity of sound for normal conversation is 30-60 dB.

81. Fluoride pollution mainly affects

(1) Brain (2) Heart (3) Teeth (4) Kidney

Sol. Answer (3)

Fluoride pollution mainly affect teeth.

82. *Escherichia coli* is used as an indicator organism to determine pollution of water by means of

(1) Heavy metals (2) Faecal matter

(3) Industrial effluents (4) Pollen of aquatic plants

Sol. Answer (2)

E. coli present in huge number in faecal matter.

83. Lead concentration in blood is considered alarming if it is

(1) 20 μg/100 ml (2) 30 μg/100 ml (3) 4 - 6 μg/100ml (4) 10 μg/100 ml

Sol. Answer (2)

30 μg/100 ml

84. Which one of the following is not used for disinfection of drinking water?

(1) Chlorine (2) Ozone (3) Chloramine (4) Phenyl

Sol. Answer (4)

Phenyl is not used for disinfection of drinking water.

85. Which of the following organism is likely to have more concentration of D.D.T. in its body?

(1) Top carnivores (2) Primary producers (3) Herbivores (4) Carnivores

Sol. Answer (1)

Top consumers or top carnivores have maximum concentration of DDT in their body.

86. Climate of the world is threatened by

(1) Increasing concentration of atmospheric oxygen (2) Decreasing amount of atmospheric oxygen

(3) Increasing amount of atmospheric carbondioxide (4) Decreasing amount of atmospheric carbondioxide

Sol. Answer (3)

Climate of the world is threatened by increasing amount of atmospheric carbon dioxide.

87. Which one of the following gases contribute maximum to the 'green house effect' on the earth?

(1) Carbon dioxide (2) Chlorofluoro carbon (3) Freon (4) Methane

Sol. Answer (1)

Carbon dioxide contribution in green house effect is 60% (maximum).

88. The true statement about 'green-house effect' is that it is

(1) Caused by CO_2, CCl_4 and HFC (2) Caused only by CO_2

(3) Caused by CO_2, CFC, CH_4 and NO_2 gases (4) None of these

Sol. Answer (3)

GHE is caused by CO_2, CFC, CH_4 and NO_2 gases.

89. Which country has the greatest contribution for the hole formation in ozone layer?

(1) Russia (2) Japan (3) USA (4) Germany

Sol. Answer (3)

90. In coming years, skin related disorders will be more common due to

(1) Water pollution (2) Depletion of ozone layer

(3) Pollutants in air (4) Use of detergents

Sol. Answer (2)

91. Formation of ozone hole is maximum over

(1) Europe (2) Africa (3) India (4) Antarctica

Sol. Answer (4)

92. The supersonic jets cause pollution by the thinning of
(1) O_2 layer (2) O_3 layer (3) CO_2 layer (4) SO_2 layer

Sol. Answer (2)

The supersonic jets cause pollution by thinning of O_3 layer.

93. If there was no CO_2 in the earth's atmosphere, the temperature of earth's surface would be
(1) Higher than the present
(2) Dependent on the amount of oxygen in the atmosphere
(3) Same as present
(4) Less than the present

Sol. Answer (4)

Less than present *i.e.* reduced to –18°C.

94. Which important green-house gas, other than methane, is being produced from the agricultural fields?
(1) Ammonia (2) Nitrous oxide (3) Arsine (4) Sulphur dioxide

Sol. Answer (2)

95. Green house effect refers to
(1) Production of cereals (2) Warming of earth
(3) Cooling of earth (4) Trapping of UV rays

Sol. Answer (2)

Green house effect refers to warming of earth.

96. Maximum green house gases are released by which of the following country?
(1) India (2) France
(3) USA (4) Britain

Sol. Answer (3)

Maximum green house gases are released by USA.

97. Warm ocean surge of the peru current recurring every 5 to 8 years or so in the East Pacific of South America is widely known as
(1) El-Nino (2) Aye Aye
(3) Magnox (4) Gulf stream

Sol. Answer (1)

98. The second commitment period for Kyoto Protocol was decided at
(1) Cancun (2) Durban
(3) Bali (4) Doha

Sol. Answer (4)

The second commitment period for Kyoto Protocol was decided at Doha.

99. At present the concentration of CO_2 in the atmosphere is about
(1) 100 ppm (2) 240 ppm
(3) 380 ppm (4) 520 ppm

Sol. Answer (3)

At present the concentration of CO_2 in the atmosphere is about 380 ppm.

100. The two great industrial tragedies namely, MIC and Chernobyl tragedies respectively occurred where and at which time?

(1) Bhopal 1984, Ukrain 1986

(2) Bhopal 1986, Russia 1988

(3) Bhopal 1984, Ukrain 1990

(4) Bhopal 1984, Ukrain 1988

Sol. Answer (1)

Bhopal 1984, Ukrain 1986

101. In 1984, Bhopal gas tragedy was caused due to leakage of

(1) Potassium isocyanate (2) Methyl isocyanate

(3) Carbon monoxide (4) None of these

Sol. Answer (2)

Methyl isocyanate

102. In 1984, the Bhopal gas tragedy took place because methyl isocyanate

(1) Reacted with DDT (2) Reacted with ammonia

(3) Reacted with CO_2 (4) Reacted with water

Sol. Answer (4)

Methyl isocyanate reacted with water.

103. Which of the following is the main factor of desertification?

(1) Over-grazing (2) Tourism (3) Irrigated agriculture (4) All of these

Sol. Answer (1)

SECTION - C

Assertion-Reason Type Questions

1. A : Euro-II norms are framed to reduce the content of CO and aromatic compounds from fuels.

R : These compounds lead to reduce visibility and carboxyhemoglobin formation.

Sol. Answer (4)

Euro-II norms are framed to reduce the content of sulphur and aromatic compounds from fuels. These compounds lead to vehicular pollution.

2. A : Nitrate and phosphate discharge in a water body causes eutrophication.

R : This increases the inorganic content in water body and hence growth of algal blooms.

Sol. Answer (1)

Nitrate and phosphate in a water bodies result more fertile nature of water called eutrophication, that increases BOD and huge growth of algae called Algal Bloom.

3. A : Biomagnification of DDT can enhance the decline in bird population.

R : DDT causes thicking of egg shell and their delayed breaking by disturbing calcium metabolism.

Sol. Answer (3)

Biomagnification of DDT can reduce bird population because it causes thinning of egg shell.

4. A : Ecological sanitation is a sustainable system for handling human excreta.

R : It is a practical and hygienic method of using dry composting toilets.

Sol. Answer (1)

Ecological sanitation is sustainable system for handling human excreta. It is a practical and hygenic method of using dry composting toilets.

5. A : El Nino is a climatic change which causes deleterious environmental changes.

R : Increased trophospheric ozone due to El Nino cause shift of climatic regions.

Sol. Answer (3)

El-Nino is climatic change which causes deleterious environmental changes. Increased smog trophospheric ozone is due to photochemical.

6. A : ESP can remove the particulate matter by more than 99%.

R : Anode attract the particles and provide positive charge the same & allow them to fall.

Sol. Answer (3)

ESP can remove the particulate matter by more than 99%. Anode attract the particles and provide negative charge to them.

7. A : Montreal Protocol suggested the reduction of ODS.

R : A land mark international agreement taken in Earth summit held at Rio de Janeiro.

Sol. Answer (3)

Montreal Protocol suggested the reduction of ozone depleting substances (ODS). A landmark international agreement taken in Montreal - Canada in 1987.

8. A : High concentration of atmospheric SO_2 reduces primary productivity.

R : SO_2 converts the chlorophyll a into phaeophytin.

Sol. Answer (1)

High concentration of atmospheric SO_2 reduces primary productivity because SO_2 converts the chlorophyll into phaeophytin by replacing Mg.

9. A : Intensive agriculture leads to negative soil pollution.

R : It increases useful mineral contents in top layer of soil.

Sol. Answer (3)

Intensive agriculture leads to negative soil pollution because It decreases useful mineral contents.

10. A : Irrigation without proper drainage of water leads to water logging in the soil.

R : Water logging results in increased soil salinity.

Sol. Answer (2)

Irrigation without proper drainage of water leads to water logging in the soil that increased soil salinity.

11. A : PAN is a secondary pollutant.

R : PAN is formed by interaction of nitrogenoxides and hydrocarbon in the absence of light.

Sol. Answer (3)

PAN is produced by photochemical reaction.

12. A : Taj Mahal is being destroyed by SO_2 coming from Mathura refinary.

R : This converts $CaCO_3$ into unstable calcium sulphate.

Sol. Answer (1)

$SO_2/SO_3 + H_2O \longrightarrow H_2SO_4$ [Acid rain]

13. A : A few toxic substance often present in industrial waste waters undergo biological magnification.

R : A toxic substance can easily be metabolised or excreted by organism.

Sol. Answer (3)

The toxic substance cannot be metabolised or excreted by organism.

14. A : High concentration of atmospheric SO_2 and NO_x causes acid rain.

R : It causes damage to foliage and growing points of plant.

Sol. Answer (2)

Acid rain demages foliage and growing points of plant.

15. A : Polyblend is a fine powder of recycled plastics.

R : The blend of polyblend and bitumen, helped to increase road life by a factor of three.

Sol. Answer (2)

Polyblend was mixed with bitumen to lay roads.

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