

Environmental Issues

16.0 Introduction

1. Which of the following is a secondary pollutant?
(a) CO (b) CO₂
(c) SO₂ (d) O₃ (NEET 2018)
2. A renewable exhaustible natural resource is
(a) coal (b) petroleum
(c) minerals (d) forest. (2010)
3. Which is the cause of damage to relative biological effectiveness?
(a) High temperature (b) Pollution
(c) Radiation (d) Low temperature (2000)
4. Which of the following is a secondary pollutant?
(a) PAN (b) Aerosol
(c) CO (d) CO₂ (1999)
5. Petroleum is a
(a) synthetic product
(b) renewable resource
(c) nonrenewable resource
(d) inconvenient resource. (1992)
6. Minerals and metals are
(a) biodegradable resources
(b) renewable
(c) non-renewable
(d) renewable and non-renewable resources. (1992)
7. Domestic waste constitutes
(a) non-biodegradable pollution
(b) biodegradable pollution
(c) effluents
(d) air pollution. (1991)
9. Acid rain is caused by increase in the atmospheric concentration of
(a) CO₂ and CO (b) O₃ and dust
(c) SO₂ and NO₂ (d) SO₃ and CO. (2015)
10. Which of the following are most suitable indicators of SO₂ pollution in the environment?
(a) Algae (b) Fungi
(c) Lichens (d) Conifers (2015)
11. A location with luxuriant growth of lichens on the trees indicates that the
(a) trees are very healthy
(b) trees are heavily infested
(c) location is highly polluted
(d) location is not polluted. (2014)
12. A scrubber in the exhaust of a chemical industrial plant removes
(a) gases like sulphur dioxide
(b) particulate matter of the size 5 micrometer or above
(c) gases like ozone and methane
(d) particulate matter of the size 2.5 micrometer or less. (2014)
13. The Air Prevention and Control of Pollution Act came into force in
(a) 1985 (b) 1990
(c) 1975 (d) 1981 (NEET 2013)
14. Which one of the following is not correct with regard to the harmful effects of particulate matter of the size 2.5 micrometer or less?
(a) It can cause respiratory problems.
(b) It can directly enter into our circulatory system.
(c) It can cause inflammation and damage to the lungs.
(d) It can be inhaled into the lungs.
(Karnataka NEET 2013)

16.1 Air Pollution and Its Control

8. Which one of the following statements is not valid for aerosols?
(a) They alter rainfall and monsoon patterns.
(b) They cause increased agricultural productivity.
(c) They have negative impact on agricultural land.
(d) They are harmful to human health.
(NEET 2017)
15. dB is a standard abbreviation used for the quantitative expression of
(a) the density of bacteria in a medium
(b) a particular pollutant
(c) the dominant *Bacillus* in a culture
(d) a certain pesticide. (2010)

16. Steps taken by the Government of India to control air pollution include
(a) compulsory PUC (Pollution under control) certification of petrol driven vehicles which tests for carbon monoxide and hydrocarbons
(b) permission to use only pure diesel with a maximum of 500 ppm sulphur as fuel for vehicles
(c) use of non-polluting compressed natural gas (CNG) only as fuel by all buses and trucks
(d) compulsory mixing of 20% ethyl alcohol with petrol and 20% biodiesel with diesel. (2009)
17. 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?
(a) 1.0 or less (b) 5.2 - 2.5
(c) 2.5 or less (d) 1.5 or less (2008)
18. In a coal fired power plant electrostatic precipitators are installed to control emission of
(a) NO_x (b) SPM
(c) CO (d) SO_2 . (2007)
19. Photochemical smog pollution does not contain
(a) PAN (peroxyacyl nitrate)
(b) ozone
(c) nitrogen dioxide
(d) carbon dioxide. (2006)
20. Lead concentration in blood is considered alarming if it is
(a) 20 mg / 100 mL (b) 30 mg / 100 mL
(c) 4 - 6 mg / 100 mL (d) 10 mg / 100 mL. (2004)
21. Fluoride pollution mainly affects
(a) brain (b) heart
(c) teeth (d) kidney. (2003)
22. What is the intensity of sound in normal conversation?
(a) 10-20 dB (b) 30-60 dB
(c) 70-90 dB (d) 120-150 dB (2001)
23. Which of the following is pollution related disorder?
(a) Silicosis (b) Pneumoniosis
(c) Fluorosis (d) Leprosy (1999)
24. Which of the following is the use of lichens in case of pollution?
(a) They promote pollution.
(b) Lichens are not related with pollution.
(c) They treat the polluted water.
(d) They act as bioindicators of pollutions. (1999)
25. The supersonic jets cause pollution by the thinning of
(a) O_2 layer (b) O_3 layer
(c) CO_2 layer (d) SO_2 layer. (1998)
26. Carbon monoxide is a pollutant because
(a) reacts with haemoglobin
(b) makes nervous system inactive
(c) it reacts with O_2 (d) it inhibits glycolysis. (1998)
27. How carbon monoxide, emitted by automobiles, prevents transport of oxygen in the body tissues?
(a) By forming a stable compound with haemoglobin
(b) By obstructing the reaction of oxygen with haemoglobin
(c) By changing oxygen into carbon dioxide
(d) By destroying the haemoglobin (1998)
28. The Taj Mahal is threatened due to the effect of
(a) oxygen (b) hydrogen
(c) chlorine (d) sulphur dioxide. (1995)
29. The toxic effect of carbon monoxide is due to its greater affinity for haemoglobin as compared to oxygen approximately by
(a) 200 times (b) 1000 times
(c) 2 times (d) 20 times. (1995)
30. Sounds above what level are considered hazardous noise pollution?
(a) Above 80 dB (b) Above 30 dB
(c) Above 150 dB (d) Above 120 dB (1994)
31. Ultraviolet radiations from sunlight causes a reaction that produces
(a) fluorides (b) carbon monoxide
(c) sulphur dioxide (d) ozone. (1993)
32. Most hazardous metal pollutant of automobile exhausts is
(a) mercury (b) cadmium
(c) lead (d) copper. (1992)
33. Which one is not a pollutant normally?
(a) Hydrocarbon (b) Carbon dioxide
(c) Carbon monoxide (d) Sulphur dioxide (1992, 1988)
34. Acid rain is due to increase in atmospheric concentration of
(a) ozone and dust (b) CO_2 and CO
(c) SO_3 and CO (d) SO_2 and NO_2 . (1991)
35. Major aerosol pollutant in jet plane emission is
(a) sulphur dioxide (b) carbon monoxide
(c) methane (d) fluorocarbon. (1990)

36. Acid rains are produced by
 (a) excess NO_2 and SO_2 from burning fossil fuels
 (b) excess production of NH_3 by industry and coal gas
 (c) excess release of carbon monoxide by incomplete combustion
 (d) excess formation of CO_2 by combustion and animal respiration. (1989, 1988)

16.2 Water Pollution and its Control

37. Biochemical Oxygen Demand (BOD) may not be a good index for pollution for water bodies receiving effluents from
 (a) domestic sewage (b) dairy industry
 (c) petroleum industry (d) sugar industry. (NEET-II 2016)
38. A lake which is rich in organic waste may result in
 (a) increased population of aquatic organisms due to minerals
 (b) drying of the lake due to algal bloom
 (c) increased population of fish due to lots of nutrients
 (d) mortality of fish due to lack of oxygen. (NEET-II 2016)
39. The highest DDT concentration in aquatic food chain shall occur in
 (a) phytoplankton (b) seagull
 (c) crab (d) eel. (NEET-II 2016)
40. A river with an inflow of domestic sewage rich in organic waste may result in
 (a) an increased production of fish due to biodegradable nutrients
 (b) death of fish due to lack of oxygen
 (c) drying of the river very soon due to algal bloom
 (d) increased population of aquatic food web organisms. (NEET-I 2016)
41. Eutrophication of water bodies leading to killing of fishes is mainly due to non-availability of
 (a) essential minerals (b) oxygen
 (c) food (d) light. (2015)
42. Increase in concentration of the toxicant at successive trophic levels is known as
 (a) biotransformation
 (b) biogeochemical cycling
 (c) biomagnification
 (d) biodeterioration. (2015)
43. High value of BOD (Biochemical Oxygen Demand) indicates that
 (a) water is less polluted
 (b) consumption of organic matter in the water is higher by the microbes
 (c) water is pure
 (d) water is highly polluted. (2015 Cancelled)
44. Rachel Carson's famous book "Silent Spring" is related to
 (a) population explosion
 (b) ecosystem management
 (c) pesticide pollution
 (d) noise pollution. (2015 Cancelled)
45. In an area where DDT had been used extensively, the population of birds declined significantly because
 (a) birds stopped laying eggs
 (b) earthworms in the area got eradicated
 (c) cobras were feeding exclusively on birds
 (d) many of the birds eggs laid, did not hatch. (2012)
46. Measuring Biochemical Oxygen Demand (BOD) is a method used for
 (a) estimating the amount of organic matter in sewage water
 (b) working out the efficiency of oil driven automobile engines
 (c) measuring the activity of *Saccharomyces cerevisiae* in producing curd on a commercial scale
 (d) working out the efficiency of RBCs about their capacity to carry oxygen. (2012)
47. Eutrophication is often seen in
 (a) deserts (b) fresh water lakes
 (c) ocean (d) mountains. (2011)
48. When domestic sewage mixes with river water
 (a) small animals like rats will die after drinking river water
 (b) the increased microbial activity releases micronutrients such as iron
 (c) the increased microbial activity uses up dissolved oxygen
 (d) the river water is still suitable for drinking as impurities are only about 0.1%. (Mains 2010)
49. Biochemical oxygen demand (BOD) in a river water
 (a) has no relationship with concentration of oxygen in the water
 (b) gives a measure of *Salmonella* in the water
 (c) increases when sewage gets mixed with river water
 (d) remains unchanged when algal bloom occurs. (2009)
50. DDT residues are rapidly passed through food chain causing biomagnification because DDT is
 (a) moderately toxic
 (b) non-toxic to aquatic animals
 (c) water soluble
 (d) lipo soluble. (2009)
51. 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 there by greatly reducing photosynthesis.
- Which two of the above were the main causes of fish mortality in the lake?
 (a) A, C (b) A, B
 (c) B, C (d) C, D (2008)
52. 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) $SE < PE < S < DE$ (b) $PE < S < SE < DE$
 (c) $S < DE < PE < SE$ (d) $SE < S < PE < DE$ (2007)
53. Which one of the following statements is correct?
 (a) Both *Azotobacter* and *Rhizobium* fix atmospheric nitrogen in root nodules of plants.
 (b) Cyanobacteria such as *Anabaena* and *Nostoc* are important mobilizers of phosphates and for plant nutrition in soil.
 (c) At present it is not possible to grow maize without chemical fertilizers.
 (d) Extensive use of chemical fertilizers may lead to eutrophication of nearby water bodies. (2007)
54. Which one of the following is not a bioindicator of water pollution?
 (a) Blood-worms (b) Stone flies
 (c) Sewage fungus (d) Sludge-worms (2007)
55. Limit of BOD prescribed by Central Pollution Control Board for the discharge of industrial and municipal waste waters into natural surface waters, is
 (a) < 30 ppm (b) < 3.0 ppm
 (c) < 10 ppm (d) < 100 ppm. (2006)
56. Which one of the following is not used for disinfection of drinking water?
 (a) Chlorine (b) Ozone
 (c) Chloramine (d) Phenyl (2005)
57. Common indicator organism of water pollution is
 (a) *Lemna panicostata*
 (b) *Eichhornia crassipes*
 (c) *Escherichia coli*
 (d) *Entamoeba histolytica*. (2004)
58. *Escherichia coli* is used as an indicator organism to determine pollution of water with
 (a) heavy metals (b) faecal matter
 (c) industrial effluents (d) pollen of aquatic plants. (2003)
59. Which of the following is absent in polluted water?
 (a) *Hydrilla* (b) Water hyacinth
 (c) Larva of stone fly (d) Blue green algae (2002)
60. What is B.O.D.?
 (a) The amount of O_2 utilised by organisms in water.
 (b) The amount of O_2 utilised by microorganisms for decomposition.
 (c) The total amount of O_2 present in water.
 (d) All of the above (2001)
61. The Minamata disease in Japan was caused through the pollution of water by
 (a) cyanide (b) methyl isocyanate
 (c) lead (d) mercury. (1999)
62. D.D.T. is
 (a) not a pollutant
 (b) an antibiotic
 (c) a non-degradable pollutant
 (d) a biodegradable pollutant. (1999)
63. Which of the following organism is likely to have more concentration of D.D.T. in its body?
 (a) Top carnivores (b) Primary producers
 (c) Herbivores (d) Carnivores (1999)
64. The maximum biomagnification would be in which of the following in case of aquatic ecosystem?
 (a) Zooplanktons (b) Phytoplanktons
 (c) Fishes (d) Birds (1999)
65. Which one of the following organisms is used as indicator of water quality?
 (a) *Azospirillum* (b) *Escherichia*
 (c) *Biggiata* (d) *Chlorella* (1998)
66. The most common indicator organism that represents polluted water is
 (a) *C.vibrio*
 (b) *Entamoeba histolytica*
 (c) *E.coli*
 (d) *P.typhi*. (1997)
67. Phosphate pollution is caused by
 (a) sewage and phosphate rock
 (b) sewage and agricultural fertilizers
 (c) phosphate rock only
 (d) agricultural fertilizers only. (1997)
68. When huge amount of sewage is dumped into a river, its B.O.D. will
 (a) slightly decrease (b) remain unchanged
 (c) increase (d) decrease. (1995)
69. In Minamata Bay Japan the animals which remained free from minamata disease, are
 (a) dogs (b) cats
 (c) pigs (d) rabbits. (1995)

70. A dental disease characterized by mottling of teeth is due to the presence of certain chemical element in drinking water. Which of the following is that element?
 (a) Fluorine (b) Boron
 (c) Mercury (d) Chlorine (1995)
71. Which among the following is likely to have the highest levels of D.D.T. depositions in its body?
 (a) Sea gull (b) Phytoplankton
 (c) Eel (d) Crab (1994)
72. A disease caused by eating fish contaminated by industrial waste, containing mercury compounds, is called
 (a) osteosclerosis (b) Hashimoto's oxidase
 (c) Bright's disease (d) Minimata disease. (1994)
73. American water plant that has become a troublesome water weed in India is
 (a) *Cyperus rotundus* (b) *Eichhornia crassipes*
 (c) *Typha latifolia* (d) *Trapa bispinosa*. (1993)

16.3 Solid Wastes

74. Polyblend, a fine powder of recycled modified plastic, has proved to be a good material for
 (a) making tubes and pipes
 (b) making plastic sacks
 (c) use as a fertiliser
 (d) construction of roads. (NEET 2019)

16.5 Radioactive Wastes

75. Which of the following methods is the most suitable for disposal of nuclear waste?
 (a) Bury the waste within rocks deep below earth's surface
 (b) Shoot the waste into space
 (c) Bury the waste under Antarctic ice-cover
 (d) Dump the waste within rocks under ocean (NEET 2019)
76. Which one of the following statements is incorrect in case of Bhopal tragedy?
 (a) Methyl isocyanate gas leakage took place.
 (b) Thousands of human beings died.
 (c) Radioactive fall out engulfed Bhopal.
 (d) It took place in the night of December 2/3, 1984. (2011)
77. In 1984, the Bhopal gas tragedy took place because methyl isocyanate
 (a) reacted with DDT
 (b) reacted with ammonia

- (c) reacted with CO_2
 (d) reacted with water. (2004)

78. In 1984, Bhopal gas tragedy was caused due to leakage of
 (a) potassium isocyanate
 (b) methyl isocyanate
 (c) sodium monoxide
 (d) none of these. (1999)
79. The two great industrial tragedies namely, MIC and Chernobyl tragedies respectively occurred where and at which time?
 (a) Bhopal 1984, Ukraine 1986
 (b) Bhopal 1986, Russia 1988
 (c) Bhopal 1984, Ukraine 1990
 (d) Bhopal 1984, Ukraine 1988 (1996)
80. Which of the following isotopes is most dangerous to *Homo sapiens*?
 (a) Phosphorus-32 (b) Strontium-90
 (c) Cesium-137 (d) Iodine-131 (1995)
81. Gas released during Bhopal tragedy was
 (a) methyl isocyanate
 (b) potassium isothiocyanate
 (c) sodium isothiocyanate
 (d) ethyl isothiocyanate. (1990)

16.6 Greenhouse Effect and Global Warming

82. Which of the following pairs of gases is mainly responsible for greenhouse effect?
 (a) Carbon dioxide and methane
 (b) Ozone and ammonia
 (c) Oxygen and nitrogen
 (d) Nitrogen and sulphur dioxide (NEET 2019)
83. The UN Conference of Parties on climate change in the year 2012 was held at
 (a) Lima (b) Warsaw
 (c) Durban (d) Doha. (2015)
84. The UN Conference of Parties on climate change in the year 2011 was held in
 (a) Peru (b) Qatar
 (c) Poland (d) South Africa. (2015 Cancelled)
85. Global warming can be controlled by
 (a) increasing deforestation, slowing down the growth of human population
 (b) increasing deforestation, reducing efficiency of energy usage
 (c) reducing deforestation, cutting down use of fossil fuel
 (d) reducing reforestation, increasing the use of fossil fuel. (NEET 2013)

- 86.** Climate of the world is threatened by
 (a) decreasing amount of atmospheric oxygen
 (b) increasing amount of atmospheric carbon dioxide
 (c) decreasing amount of atmospheric carbon dioxide
 (d) increasing concentration of atmospheric oxygen.
(Karnataka NEET 2013)
- 87.** Which one of the following pairs of gases are the major cause of "greenhouse effect"?
 (a) CO₂ and O₃ (b) CO₂ and CO
 (c) CFCs and SO₂ (d) CO₂ and N₂O (2011)
- 88.** Which one of the following is correct expanded form of the acronym?
 (a) IPCC = International Panel for Climate Change
 (b) UNEP = United Nations Environmental Policy
 (c) EPA = Environmental Pollution Agency
 (d) IUCN = International Union for Conservation of Nature and Natural Resources (2011)
- 89.** The two gases making highest relative contribution to the greenhouse gases are
 (a) CO₂ and CH₄ (b) CH₄ and N₂O
 (c) CFCs and N₂O (d) CO₂ and N₂O. (2010)
- 90.** Which one of the following is the correct percentage of the two (out of the total of 4) greenhouse gases that contribute to the total global warming?
 (a) N₂O 6%, CO₂ 86%
 (b) Methane 20%, N₂O 18%
 (c) CFCs 14%, methane 20%
 (d) CO₂ 40%, CFCs 30% (2008)
- 91.** Which one of the following pairs is mismatched?
 (a) Fossil fuel burning – release of CO₂
 (b) Nuclear power – radioactive wastes
 (c) Solar energy – greenhouse effect
 (d) Biomass burning – release of CO₂ (2005)
- 92.** Maximum greenhouse gas released by which of the following country?
 (a) India (b) France
 (c) USA (d) Britain (2002)
- 93.** If there was no CO₂ in the earth's atmosphere, the temperature of earth's surface would be
 (a) higher than the present
 (b) dependent on the amount of oxygen in the atmosphere
 (c) same as present
 (d) less than the present. (1998)
- 94.** The CO₂ content by volume, in the atmospheric air is about
 (a) 3.34% (b) 4%
 (c) 0.0314% (d) 0.34%. (1997)
- 95.** The true statement about 'greenhouse effect' is that it is
 (a) caused by combination of many gases
 (b) caused only by CO₂
 (c) caused by CO₂, CFC, CH₄ and NO₂ gases
 (d) none of these. (1996)
- 96.** Which one of the following gases contributes maximum to the 'greenhouse effect' on the earth?
 (a) Carbon dioxide
 (b) Chlorofluorocarbon
 (c) Freon
 (d) Methane (1994)
- 97.** Greenhouse effect is warming due to
 (a) infra-red rays reaching earth
 (b) moisture layer in atmosphere
 (c) increase in temperature due to increase in carbon dioxide concentration of atmosphere
 (d) ozone layer of atmosphere. (1991, 1989)
- 16.7 Ozone depletion in the Stratosphere**
- 98.** Montreal protocol was signed in 1987 for control of
 (a) transport of genetically modified organisms from one country to another
 (b) emission of ozone depleting substances
 (c) release of greenhouse gases
 (d) disposal of e-wastes. (NEET 2020)
- 99.** Snow-blindness in Antarctic region is due to
 (a) freezing of fluids in the eye by low temperature
 (b) inflammation of cornea due to high dose of UV-B radiation
 (c) high reflection of light from snow
 (d) damage to retina caused by infra-red rays. (NEET 2020)
- 100.** Which of the following protocols did aim reducing emission of chlorofluorocarbons into atmosphere?
 (a) Geneva Protocol (b) Montreal Protocol
 (c) Kyoto Protocol (d) Gothenburg Protocol (NEET 2019)
- 101.** Which of the following statements about ozone is correct?
 (a) Tropospheric ozone protects us from UV radiations.
 (b) Stratospheric ozone is 'bad'.
 (c) Tropospheric ozone is 'good'.
 (d) Stratospheric ozone protects us from UV radiations. (Odisha NEET 2019)
- 102.** In stratosphere, which of the following elements acts as a catalyst in degradation of ozone and release of molecular oxygen?
 (a) Carbon (b) Cl
 (c) Fe (d) Oxygen (NEET 2018)

- 103.** World Ozone Day is celebrated on
 (a) 5th June (b) 21st April
 (c) 16th September (d) 22nd April.
 (NEET 2018)

- 104.** Depletion of which gas in the atmosphere can lead to an increased incidence of skin cancers?
 (a) Ammonia (b) Methane
 (c) Nitrous oxide (d) Ozone (NEET-I 2016)

- 105.** Which of the following is not one of the prime health risks associated with greater UV radiations through the atmosphere due to depletion of stratospheric ozone?
 (a) Damage to eyes (b) Increased liver cancer
 (c) Increased skin cancer
 (d) Reduced immune system (2015 Cancelled)

- 106.** The zone of atmosphere in which the ozone layer is present is called
 (a) ionosphere (b) mesosphere
 (c) stratosphere (d) troposphere. (2014)

- 107.** Kyoto protocol was endorsed at
 (a) CoP - 6 (b) CoP - 4
 (c) CoP - 3 (d) CoP - 5.
 (NEET 2013)

- 108.** The second commitment period for Kyoto Protocol was decided at
 (a) Durban (b) Bali
 (c) Doha (d) Cancun.
 (Karnataka NEET 2013)

- 109.** "Good ozone" is found in the
 (a) mesosphere (b) troposphere
 (c) stratosphere (d) ionosphere.
 (Mains 2011)

- 110.** Global agreement in specific control strategies to reduce the release of ozone depleting substances, was adopted by
 (a) Montreal Protocol (b) Kyoto Protocol
 (c) Vienna Convention
 (d) Rio de Janeiro Conference. (2009)

- 111.** Montreal Protocol aims at
 (a) biodiversity conservation
 (b) control of water pollution
 (c) control of CO₂ emission
 (d) reduction of ozone depleting substances.
 (2009)

- 112.** Montreal protocol which calls for appropriate action to protect the ozone layer from human activities was passed in the year
 (a) 1985 (b) 1986
 (c) 1987 (d) 1988. (2006)

- 113.** Identify the correctly matched pair.
 (a) Basel convention – Biodiversity conservation
 (b) Kyoto protocol – Climatic change

- (c) Montreal protocol – Global warming
 (d) Ramsar convention – Ground water pollution
 (2005)

- 114.** In coming years, skin related disorders will be more common due to
 (a) water pollution
 (b) depletion of ozone layer
 (c) pollutants in air
 (d) use of detergents. (1997)

- 115.** Formation of ozone hole is maximum over
 (a) Europe (b) Africa
 (c) India (d) Antarctica. (1997)

- 116.** Which country has the greatest contribution for the hole formation in ozone layer?
 (a) Russia (b) Japan
 (c) USA (d) Germany (1996)

16.8 Degradation by Improper Resource Utilisation and Maintenance

- 117.** Prolonged liberal irrigation of agricultural fields is likely to create the problem of
 (a) acidity (b) aridity
 (c) salinity (d) metal toxicity. (2005)

16.9 Deforestation

- 118.** Match the items given in column I with those in column II and select the correct option given below.

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

(NEET 2018)

- 119.** Joint Forest Management Concept was introduced in India during
 (a) 1980s (b) 1990s
 (c) 1960s (d) 1970s.
 (NEET-I 2016)

- 120.** Which one of the following is a wrong statement?
 (a) Most of the forests have been lost in tropical areas.
 (b) Ozone in upper part of atmosphere is harmful to animals.
 (c) Greenhouse effect is a natural phenomenon.
 (d) Eutrophication is a natural phenomenon in freshwater bodies. (2012)

- 121.** Chipko movement was launched for the protection of
 (a) forests (b) livestock
 (c) wetlands (d) grasslands. (2009)
- 122.** If we uncover half of the forest covering the earth, what crisis will be produced at most and at first?
 (a) Some species will be extinct.
 (b) Population and ecological imbalance will rise up.
 (c) Energy crisis will occur.
 (d) Rest half forests will maintain this imbalance. (1996)
- 123.** Which of the following is the main factor of desertification?
 (a) Over-grazing (b) Tourism
 (c) Irrigated agriculture (d) All of these (1995)
- 124.** Deforestation will decrease
 (a) soil erosion (b) land slides
 (c) soil fertility (d) rainfall. (1990)
- 125.** Soil conservation is
 (a) conversion of sterile soil into fertile one
 (b) aeration of soil (c) erosion of soil
 (d) protection against loss. (1989)

ANSWER KEY

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|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|
| 1. (d) | 2. (d) | 3. (b) | 4. (a) | 5. (c) | 6. (d) | 7. (b) | 8. (b) | 9. (c) | 10. (c) |
| 11. (d) | 12. (a) | 13. (d) | 14. (b) | 15. (b) | 16. (a) | 17. (c) | 18. (b) | 19. (d) | 20. (b) |
| 21. (c) | 22. (b) | 23. (c) | 24. (d) | 25. (b) | 26. (a) | 27. (a) | 28. (d) | 29. (a) | 30. (d) |
| 31. (d) | 32. (c) | 33. (b) | 34. (d) | 35. (d) | 36. (a) | 37. (c) | 38. (d) | 39. (b) | 40. (b) |
| 41. (b) | 42. (c) | 43. (b,d) | 44. (c) | 45. (d) | 46. (a) | 47. (b) | 48. (c) | 49. (c) | 50. (d) |
| 51. (a) | 52. (b) | 53. (d) | 54. (b) | 55. (a) | 56. (d) | 57. (c) | 58. (b) | 59. (c) | 60. (b) |
| 61. (d) | 62. (c) | 63. (a) | 64. (d) | 65. (b) | 66. (c) | 67. (b) | 68. (c) | 69. (d) | 70. (a) |
| 71. (a) | 72. (d) | 73. (b) | 74. (d) | 75. (a) | 76. (c) | 77. (d) | 78. (b) | 79. (a) | 80. (b) |
| 81. (a) | 82. (a) | 83. (d) | 84. (d) | 85. (c) | 86. (b) | 87. (d) | 88. (d) | 89. (a) | 90. (c) |
| 91. (c) | 92. (c) | 93. (d) | 94. (c) | 95. (c) | 96. (a) | 97. (c) | 98. (b) | 99. (b) | 100. (b) |
| 101. (d) | 102. (b) | 103. (c) | 104. (d) | 105. (b) | 106. (c) | 107. (c) | 108. (c) | 109. (c) | 110. (a) |
| 111. (d) | 112. (c) | 113. (b) | 114. (b) | 115. (d) | 116. (c) | 117. (c) | 118. (c) | 119. (a) | 120. (b) |
| 121. (a) | 122. (a) | 123. (a) | 124. (d) | 125. (d) | | | | | |

Hints & Explanations

1. (d): Secondary pollutants are produced photochemically from primary pollutants and are called photochemical oxidants. These include peroxyacyl nitrates (PAN), ozone, aldehydes, smog, etc. CO, CO₂ and SO₂ are primary pollutants.

2. (d): Exhaustible resources are those natural resources which are likely to be exhausted or diminished as a result of their continuous use. These are further of two types – renewable and non-renewable. Forest is a renewable exhaustible resource which can be again generated or produced artificially or naturally. Coal, petroleum and minerals are non-renewable exhaustible natural resources which cannot be again produced or generated.

3. (b): Pollution is any change in physical, chemical or biological characteristics of the environment that has the potentiality to harm human life, life of other desirable species, natural resources, cultural assets and industries. Another type of pollution is increase in CO₂ and other

greenhouse gases and a decrease in stratospheric ozone on global scale which would be affecting air, water and land resources, biological diversity and human health. Thus pollution results in damage to biological effectiveness.

4. (a): Secondary pollutant is formed from a primary one through change or reaction. The secondary pollutant are more toxic than primary ones. Nitrogen oxides and hydrocarbons react photochemically to produce peroxyacyl nitrates and ozone. Peroxyacyl nitrates are produced due to photochemical reactions between nitrogen oxides and unsaturated hydrocarbons.

Nitrogen oxides + Hydrocarbons $\xrightarrow{\text{UV in sunlight}}$
 Peroxyacetyl nitrate (PAN) + Ozone (O₃)

5. (c)

6. (d): Metals and minerals are both renewable and non-renewable resources. Non renewable due to very long recycling in case of metals and some minerals but renewable due to shorter recycling in case of biogenetic nutrients.

7. (b) : Domestic waste constitutes biodegradable pollution. These are also called non-conservative pollutants. These are decomposed chemically or by activity of microorganisms into harmless products and are recycled back into the atmosphere.

8. (b) : Aerosols are harmful environmental pollutants which have negative effects on agriculture.

9. (c) : Acid rain is rainfall and other forms of precipitation with a pH of less than 5. Acid rain is caused by large scale emission of acidic gases into the atmosphere from thermal power plants, industries and automobiles. The common ones are sulphur dioxide, nitrogen oxides (NO_x), volatile organic carbons (VOCs) and hydrogen chloride. Sulphur dioxide and nitrogen oxides are changed in the atmosphere into sulphuric acid and nitric acid by combining with oxygen and water, which then fall on earth in the form of acid rain.

10. (c) : Lichens are very sensitive to SO_2 pollution. They are completely destroyed at places where there is SO_2 pollution in atmosphere. Therefore, they act as very good indicators of SO_2 pollution.

11. (d)

12. (a) : Dust separation is carried out by scrubbers. They are of two types, dry and wet. Both can be used to separate particulate matter by passing through dry or wet packing material but more commonly they are employed in removing gaseous pollutants like SO_2 .

13. (d)

14. (b) : Particulate matter consists of soot, flyash, dust, spores, pollen grains, etc. Particulate matter is differentiated into settleable (larger than 10 μm and remaining in air for less than one day) and suspended (less than 10 μm and remaining in air for more than one day to several weeks). Particles of 2.5 μm and lesser diameter (PM 2.5) are the most harmful to human health (as per Central Pollution Control Board or CPCB). They pass deep into the lungs causing breathing and respiratory problems, irritation, inflammation and damage to lungs resulting in pre-mature death. It cannot directly enter circulatory system but indirectly through respiratory system.

15. (b) : Unwanted sound is called noise and it is measured in terms of decibels (dB). Generally sound above 80 dB is noise.

16. (a)

17. (c) : Refer to answer 14.

18. (b) : SPM is suspended particulate matter which is less than 10 μm remaining in air for more than one day to several weeks. It includes aerosol, dust, mist, smoke, soot, etc.

19. (d) : Photochemical smog is grey or yellow brown opaque smog having oxidising environment with

little smoke. Photochemical smog contains secondary pollutants or photochemical oxidants. It was first reported over Los Angeles in 1940s. Photochemical smog is formed at high temperature over cities and towns due to still air, emission of nitrogen oxides and carbohydrates from automobile exhausts and solar energy. Nitrogen dioxides splits into nitric oxide and nascent oxygen. Nascent oxygen combines with molecular oxygen to form ozone. Ozone reacts with carbohydrates to form aldehydes and ketones. Nitrogen oxides, oxygen and ketones combine to form peroxy-acyl-nitrates (PAN). In areas with intense solar radiations, photoelectrical smog forms brown air.

20. (b) : Lead (Pb) is released by combustion of petrol as tetraethyl lead is used as antiknock in petrol. This lead is very harmful and causes plumbism or lead poisoning, which disturbs nervous system, liver, kidneys in adults and also causes brain damage in children. About 150 to 400 mg of lead is stored in the body of an average adult and blood levels average about 25 mg/100 mL. Increase to 70 mg/100 mL of blood is generally associated with clinical symptoms. Hence a level of 30 mg/100 mL should be considered alarming.

21. (c) : Fluorides are given out during refining of materials. Fluorides cause fluorosis. It is a disease which is defined by mottling of teeth, abnormal bones that are liable to fracture because fluorine replaces Ca^{2+} and makes the bones brittle. Fluoride pollution is a serious problem in many districts of Rajasthan, where excess of fluoride in water adversely affects the health of man. Many villagers have aged prematurely or became hunchback.

22. (b)

23. (c)

24. (d) : Lichens are very sensitive to SO_2 pollution. They do not grow in SO_2 polluted environment.

25. (b) : Depletion of ozone is due to action of sunlight over pollutants which release chemicals (e.g., chlorine) that destroy ozone. Ozone depleting substances react with ozone present in the stratosphere and destroy the same. The major ODS are chloroflourocarbons (14% of total depletion), nitrogen oxides (3.5% of total depletion), sulphur dioxide, halon, carbon tetrachloride, methyl chloroform, chlorine, etc. Many of these are being released by jets flying in the stratosphere and rockets being fired into space. Major contributor of these gases is USA.

26. (a) : Carbon monoxide is produced due to incomplete combustion, metallurgical operations and naturally by plants as well as animals. Carbon monoxide has 200 times more affinity to haemoglobin as compared to oxygen. Carbon monoxide combines with haemoglobin of blood and forms a stable compound called carboxyhaemoglobin. At 50 ppm, CO converts 7.5% of haemoglobin into carboxy-

haemoglobin within 8 hours. It impairs oxygen transport resulting in headache, decreased vision, cardiovascular malfunction and asphyxial.

27. (a) : Refer to answer 26.

28. (d) : The Taj Mahal is built with white marble and is threatened by environmental pollution, especially due to sulphur dioxide. Sulphur dioxide is produced during combustion of fossil fuels, refining of petroleum and smelting of sulphur containing ores. Threat to Taj Mahal from Mathura refinery is due to pollutant gases composing SO_2 , H_2S and nitrogen oxides. They would convert CaCO_3 (marble) into calcium sulphate and calcium nitrate.

29. (a) : Refer to answer 26.

30. (d) : Noise level are expressed on a logarithmic scale of decibels. The baseline noise levels in the community vary around 40 dB. International standards prescribe a maximum of 50 dB for day and 40 dB for night time in a residential area. Noise over 115 dB is regarded as highly avoidable. The World Health Organization (WHO) recommends an industrial noise limit of 75 dB.

31. (d) : Ozone is generated in the lower atmosphere during the formation of photochemical smog when nitrogen dioxide splits to produce reactive oxygen atoms which combine with molecular oxygen. Oxygen molecules split under ultraviolet radiations to produce oxygen atoms which combine with molecular oxygen to form ozone. It is this gas which forms the protective ozone umbrella in the stratosphere and shield life from biocidal high energy radiations. It can also damage DNA molecules and cause carcinogenesis.

32. (c) : Refer to answer 20.

33. (b) : The common gaseous pollutants are oxides of carbon (CO and CO_2), oxides of nitrogen (NO and NO_2), oxides of sulphur (SO_2 and SO_3), all these together contribute 90% of the global air pollution. Out of all these CO_2 is not a pollutant normally, the green plants, by photosynthesis balance the CO_2 and O_2 ratio in the air to a great extent, whereas others like carbon monoxide, NO_2 etc. are poisonous gases.

34. (d)

35. (d) : Aerosols are chlorofluorohydrocarbon compounds released into air with force in the form of vapour. Main source of aerosols is the emission of jet planes, where fluorocarbons are used. These chlorofluorocarbons depletes the ozone layer in the higher atmosphere. These CFC's have produced a hole in the ozone layer.

36. (a) : Acid rain is caused by large scale emission of acidic gases like sulphur dioxide, nitrogen oxides (NO_x), volatile organic carbons (VOCs) and hydrogen chloride. Sulphur dioxide and nitrogen oxides are changed in the atmosphere into sulphuric acid and nitric acid by

combining with oxygen and water, which then fall on earth in the form of acid rain.

37. (c) : Biochemical oxygen demand (BOD) is the measure of oxygen required by aerobic decomposers for biochemical degradation of the biodegradable organic materials. BOD indicates the degree of organic pollution in water. Petroleum is not degraded by decomposer microbes.

38. (d) : High amount of organic waste in a lake will trigger and activate decomposer microbes which will decompose organic waste. Biochemical Oxygen Demand (BOD) of this lake will shoot up and decomposers will utilise most of the dissolved oxygen present in lake. Consequently the level of dissolved oxygen will go down to alarming extent. Aquatic animals like fish which totally depend on the oxygen dissolved in water will ultimately die.

39. (b) : DDT is non-biodegradable and is not metabolised within the body of an organism rather it accumulates in the fat tissues therefore its concentration goes on increasing from one trophic level to another of a food chain, highest amount being present in top consumer, i.e., it shows biomagnification. In an aquatic food chain seagull is the top carnivore therefore will possess highest concentration of DDT.

40. (b) : High amount of organic waste in a lake will trigger and activate decomposer microbes which will decompose organic waste. Biochemical Oxygen Demand (BOD) of this lake will shoot up and decomposers will utilise most of the dissolved oxygen present in lake. Consequently the level of dissolved oxygen will go down to alarming extent. Aquatic animals like fish which totally depend on the oxygen dissolved in water will ultimately die.

41. (b) : Eutrophication is the excessive growth of algae, plants and animals in water bodies due to the nutrient enrichment particularly with nitrogen and phosphate. Nutrients present in sewage, agricultural wastes and fertilisers cause dense growth of plants and planktonic algae. The excessive growth of planktonic algae that cause colouration of water is called algal bloom, which is toxic to animals and humans. Eutrophic water bodies also support excessive growth of floating plants. Algal blooms and floating plants cut off light from submerged plants, resulting in their death. There is drastic decrease in oxygen replenishment inside water. Non-availability of oxygen results in the death of aquatic animals such as fish, which further adds to organic loading of water. Decomposition is replaced by putrefaction which is anaerobic, leading to absence of oxygen in water and death of aquatic animals.

42. (c) : Heavy metals and persistent pesticides (e.g., chlorinated hydrocarbons like DDT) pass into food chain and increase in amount per unit weight of organisms with the rise in trophic level due to their accumulation in fat. The phenomenon is called biomagnification/

bioconcentration/biological amplification, e.g., 0.003 parts per billion of DDT in water becomes 0.003 ppm in phytoplankton, 0.04 ppm in zooplankton, 0.5 ppm in clams and small fish, 2.0 ppm in predator fish and 25 ppm in fish eating birds like sea gulls.

43. (b,d) : Biochemical oxygen demand or BOD is the oxygen required for microbial decomposition of a unit mass of organic remains. The degree of impurity of water due to organic matter is measured in terms of BOD. A higher BOD of a river indicates that water is highly polluted.

44. (c)

45. (d) : Higher amounts of DDT disturb calcium metabolism of birds resulting in thinning of egg shells and their premature breaking that kills the embryos. Thus many of the eggs laid by birds did not hatch.

46. (a)

47. (b)

48. (c) : When sewage mixes with water body, microorganisms present in it biodegrade organic matter of sewage using oxygen. This results into a sharp decline in dissolved oxygen which may cause mortality of aquatic creatures. Gradually, however, dissolved oxygen increases in concentration with the completion of biodegradation of sewage matter.

49. (c)

50. (d) : Biomagnification is caused by non-degradable pollutant like DDT. Heavy metals and persistent pesticides (e.g., organochlorine or chlorinated hydrocarbons like DDT) pass into food chain and increase in amount per unit weight of organisms with the rise in trophic level because they are lipo soluble.

51. (a)

52. (b) : The BOD of the given pollutants in ascending order is PE < S < SE < DE.

53. (d)

54. (b) : Some plants and animals act as the measure of existing environmental conditions because of their response to these conditions. The organisms are called bioindicators. From the given options, stone flies do not act as bioindicator of water pollution.

55. (a) : According to central pollution control board, limit of BOD prescribed is < 30 ppm (mg/d) for 3 days at 27° C.

56. (d) : The drinking water is chlorinated with chlorine or perchlorate salts, ozonised or irradiate with UV to kill pathogens. Phenyl is not used for disinfection of drinking water.

57. (c) : *E.coli* is the most common indicator of water pollution. It naturally occurs in the intestines of human beings and animals. They are commonly found in sewage and if *E.coli* are detected in water then it indicates faecal contamination. So if *E.coli* are detected in drinking water it indicates a serious health risk and that water should not be used for drinking.

58. (b)

59. (c) : Stone fly (Plecoptera Order) larva requires well aerated, non-polluted water. It is absent in polluted water.

60. (b)

61. (d) : Mercury is changed to water soluble dimethyl mercury which undergoes biomagnification. Eating poisoned animals causes deformity known as Minamata disease (first reported in 1952 due to eating of fish captured from Hg-contaminated Minamata Bay of Japan) which is characterised by diarrhoea, haemolysis, impairment of various senses, numbness of lips, tongue, limbs, deafness, blurring of vision, mental dearrangement, meningitis and death.

62. (c)

63. (a) : DDT is non-biodegradable and is not metabolised within the body of an organism rather it accumulates in the fat tissues therefore its concentration goes on increasing from one trophic level to another of a food chain, highest amount being present in top consumer, i.e., it shows biomagnification.

64. (d)

65. (b) : Refer to answer 57.

66. (c)

67. (b) : Phosphate is an important compound of fertilizer which are added to crop fields and then are passed down to water bodies during rains through run off. It is also present in sewage that is dumped into the water body. This nutrient bring about dense growth of water plants especially the algae and cause algal bloom. This algal bloom leads to oxygen depletion in water bodies and causes death of aquatic life.

68. (c)

69. (d)

70. (a)

71. (a) : DDT is non-biodegradable and accumulates in the fat tissues. In an aquatic food chain seagull is the top carnivore therefore will possess highest concentration of DDT.

72. (d)

73. (b)

74. (d) : Polyblend, a fine powder of recycled modified plastic is mixed with bitumen that is used to lay roads. Polyblend and bitumen when used to lay roads, enhanced bitumen's water repellent properties and helped to increase road life by factor of three.

75. (a)

76. (c)

77. (d) : Bhopal gas tragedy occurred on 3 December 1984 in a Union Carbide pesticide plant. When water and MIC mixed, an exothermic chemical reaction started, which produced a lot of heat. As a result, the safety valve of the tank burst because of the increase in pressure. This burst was so violent that even the concrete around the tank also broke. The high moisture content (aerosol) in the discharge while evaporating gave rise to a heavy

gas which rapidly sank to the ground. It caused several ailments like partial or complete blindness, disorders like, gastrointestinal disorders in many surviving people.

78. (b)

79. (a)

80. (b) : Strontium-90 is a long lived radioactive isotope. It tends to cycle like calcium. It causes bone cancer, blood and tissue degeneration.

81. (a)

82. (a) : The various greenhouse gases are CO_2 , CH_4 , CFCs and N_2O . Excessive use of fossil fuels is adding more CO_2 to atmosphere. This increase in concentration of greenhouse gases has led to considerable heating of earth leading to global warming. During the past century, the temperature of earth has increased by 0.6°C .

83. (d)

84. (d)

85. (c)

86. (b) : Carbon dioxide is a greenhouse gas with warming effect of 60%. Greenhouse gases are essential for keeping the earth warm and hospitable. They prevent a substantial part of long wave radiations emitted by earth to escape into space and radiate a part of this energy back to the earth. The phenomenon is called greenhouse flux. Because of greenhouse flux, the mean annual temperature of earth is 15°C . Recently the concentration of greenhouse gases has started rising that is resulting in increasing the mean global temperature. It is called global warming. Deforestation has reduced carbon dioxide assimilation. The excess remains in the air. Excessive use of fossil fuels is adding more CO_2 to atmosphere. This causes greenhouse effect.

87. (d) : Nitrous oxide is commonly known as laughing gas or sweet air. It is a chemical compound with formula N_2O . It is also a major greenhouse gas and air pollutant along with CO_2 with tremendous global warming potential. When compared to CO_2 , N_2O has 310 times the ability to trap heat in the atmosphere. N_2O is produced naturally in the soil during the microbial processes of nitrification and denitrification. Carbon dioxide from coal-fired power stations and car exhausts, is the main greenhouse gas.

88. (d)

89. (a) : Due to heavy industrialisation and transportation (modernisation), CO_2 concentration is increasing day by day in the atmosphere. CO_2 has capacity of absorbing heat radiations and thus increases temperature. This increase in global temperature (global warming) is mainly due to CO_2 concentration and is called 'greenhouse effect'. Besides CO_2 , other important gases associated with greenhouse effect are CH_4 (methane), oxides of nitrogen (NO_x), CFCs (chlorofluorocarbons) and O_3 (ozone) and these are called 'greenhouse gases'.

Relative contribution of these gases to global warming are : CO_2 (60%), CFCs (14%), CH_4 (20%), nitrous oxide (6%).

90. (c)

91. (c)

92. (c)

93. (d) : Carbon dioxide is a greenhouse gas with warming effect of 60%. Greenhouse gases are essential for keeping the earth warm and hospitable. They prevent a substantial part of long wave radiations emitted by earth to escape into space and radiate a part of this energy back to the earth. The phenomenon is called greenhouse flux. Because of greenhouse flux, the mean annual temperature of earth is 15°C . Recently the concentration of greenhouse gases has started rising that is resulting in increasing the mean global temperature. It is called global warming. Deforestation has reduced carbon dioxide assimilation. The excess remains in the air. Excessive use of fossil fuels is adding more CO_2 to atmosphere. This causes greenhouse effect.

94. (c) : The atmosphere (air) is a mixture of several gases. Near the earth's surface it consists of 78% nitrogen, 21% oxygen, 0.93% argon, 0.03% carbon dioxide and small quantities of hydrogen, helium, neon, krypton and traces of many other gases.

95. (c)

96. (a) : Due to industrialisation and transportation (modernisation), CO_2 concentration is increasing day by day in the atmosphere. CO_2 has capacity of absorbing heat radiations and increases temperature and so greenhouse effect.

97. (c) : The mean global temperature rise by $2^\circ\text{--}6^\circ\text{C}$ and the concentration of carbon dioxide increases in the troposphere upto 600 ppm. Hence, the surface of the earth becomes warm which causes global warming. The phenomenon is similar to that of greenhouse in which the glass enclosed atmosphere gets heated up due to its insulation from the rest of the environment. Hence, global warming is also known as greenhouse effect and the gases responsible for it are called greenhouse gases e.g., CH_4 , CO_2 etc.

98. (b) : Recognising the deleterious affects of ozone depletion, an international treaty, known as the Montreal Protocol that was signed at Montreal (Canada) in 1987 (effective in 1989) to control the emission of ozone depleting substances.

99. (b) : In human eye, cornea absorbs UV-B radiation, and a high dose of UV-B causes inflammation of cornea. This leads to a disorder called snow-blindness cataract. It leads to diminishing of eye sight, photo burning and later permanent damage to cornea that results in actual cataract.

100. (b) : Montreal Protocol, is an international treaty, signed at Montreal in 1987 to control the emission of ozone depleting substances [chlorofluorocarbons (CFCs), nitrogen oxides, SO_2 , halon, methylchloroform, etc.].

101. (d)

102. (b) : UV rays act on chlorofluorocarbons (CFCs) releasing active chlorine (Cl, ClO) which further reacts with ozone in sequential manner thereby converting it into oxygen.

103. (c)

104. (d) : Ozone layer or shield is present in stratosphere. It functions as a shield against strong UV radiations coming from sun. UV radiations are very harmful and may cause mutations in living organisms. Thinning of ozone layer increases the amount of UV radiations reaching the earth. It would increase occurrence of cataract, skin cancers, dimming of eye sight, photoburning, deficient functioning of immune system, etc.

105. (b) : Ultraviolet radiations are of three types-UV-C (100 - 280 nm), UV-B (280 - 320 nm) and UV-A (320 - 390nm). Shorter ultraviolet radiations (UV-C) are absorbed by the atmosphere. The longer ones (UV-A) are not much harmful. The intermediate or UV-B are harmful as well as capable of deep penetration. Thinning of ozone layer increases the amount of UV-B radiations reaching the earth. UV-B radiations damage skin cells, cause aging of skin, skin cancer and eye damage.

106. (c) : Ozone layer or shield is present in stratosphere.

107. (c) : Kyoto protocol is an international treaty to reduce emission of greenhouse gases which was adopted at the third session of the Conference of Parties (CoP - 3) to the UNFCCC (United Nations Framework Convention on Climate Change) in 1997, in Kyoto, Japan.

108. (c) : International conference held in Kyoto, Japan obtained commitments from different countries for reducing overall greenhouse gas emissions at a level 5% below than that in 1990 by 2008-2012. In Doha, Qatar on 8th December 2012, the "Doha amendment to the Kyoto Protocol" was adopted. The second commitment period is from 1st January 2013 to 31st December 2020.

109. (c) : Bad ozone is formed in the lower atmosphere (troposphere) that harms plants and animals. Good ozone is found in the upper part of the atmosphere called the stratosphere and it acts as a shield absorbing ultraviolet radiation from the sun. UV rays are highly injurious to living organisms since DNA and proteins of living organisms preferentially absorb UV rays and its high energy breaks the chemical bonds within these molecules.

110. (a) : The Montreal protocol was signed in Montreal, Canada, by over 150 countries at a convention in 1987 to cut use of CFCs (chlorofluorocarbons). The aim of the protocol was to protect the ozone layer in the stratosphere by decreasing and eventually eliminating the use of ozone depleting substances like CFCs. It is regarded as one of the most successful international treaties in modern history.

111. (d)**112. (c)**

113. (b) : Basel convention is the control of transboundary movement of hazardous wastes and their disposal. Montreal protocol is limiting the use of ozone depleting substances like CFCs. Ramsar convention is the only global treaty that focuses specifically on wetlands.

114. (b)

115. (d) : Depletion in the concentration of ozone over a restricted area as spring time decline over Antarctica is called ozone hole. Ozone hole was discovered over Antarctica by Faman *et al*, 1985. It is quite large (23 million square km in 1992 and 28.3 million square km in 2000). A small ozone hole also occurs over North Pole. It was discovered in 1990. Thinning of ozone shield has also been reported elsewhere (*e.g.*, 8% between 30° - 50° N).

116. (c)

117. (c) : Irrigation induced salinity can arise as a result of the use of any irrigation water, irrigation of saline water, etc. combined with inadequate leaching. Since all surface and ground water contains salts to varying degrees, irrigation is often seen as the primary culprit for bringing salts into the field.

118. (c)

119. (a) : In India, Joint Forest Management was started in 1980s. Village and tribal communities are being involved in development and protection of degraded forests on share basis.

120. (b) : Ozone present in upper atmosphere forms a distinct layer that is known as ozone layer. Ozone layer is necessary for the survival of life on earth as it blocks harmful UV rays of sun from reaching earth's surface.

121. (a)

122. (a) : Deforestation will affect in different ways. Due to destruction of natural habitat, many species will get extinct. Man will be deprived of the benefits of trees and wild animals. Soil erosion will be increased. Floods and drought will become more frequent. There will also be a change in climate. Deforestation will also decrease the atmospheric humidity which will affect rainfall and makes the air hot. Economy of the forest dwelling people will be deteriorated and wild life will be adversely affected.

123. (a) : Desertification means a process of spread of desert that occurs due to degradation of environment, cutting of trees, soil erosion, etc. It can be natural or man made. The main causes for desertification are overcultivation of poor soils, over grazing by animals, excessive cutting of fuel wood and inappropriate irrigation practises resulting in salinization. Among them overgrazing is the most important factor as it causes maximum effect.

124. (d)

125. (d) : Soil conservation is to conserve fertile soil from the losses like heavy rainfall, drainage, high wind, flood, drought, etc. Soil is the top cover of the earth in which plants can grow. The rotation of crops, contour ploughing and use of proper fertilizers help in maintaining the fertility of soil. Plantation of trees, controlled grazing of grasslands, reforestation, prevention of forests fires will protect the erosion of top soil. The regulation of water resources to prevent flood will help not only in soil conservation but also supply an adequate water supply in the period of drought.

