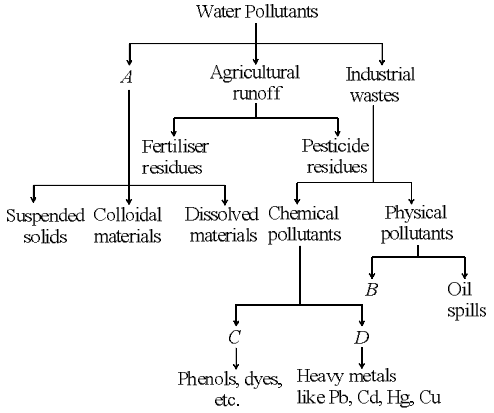
IMPORTANT PRACTICE QUESTION SERIES FOR NEET EXAM – 2

1. The below chart shows the sources of water pollution



Read carefully the chart and identify, A, B, C, and D

a) A-Domestic sewage, B-Thermal (hot) waste water, C-Organic compound, D-Inorganic compounds
b) A-Chemical sewage, B-Industrial waste water, C-Inorganic compound, D-Organic compounds
c) A-Industrial sewage, B-Domestic waste water, C-Phenol group, D-Heavy metallic group
d) A-Sewage, B-Chemical industry waste water, C-Organic compound, D-Inorganic compounds

2. Ozone depletion is occurring widely in
a) Ionosphere b) Stratosphere c) Both (a) and (b) d) Troposphere

3. Fluoride pollution mainly affects
a) Teeth b) Kidney c) Brain d) Heart

4. Chipko movement was successfully launched by
a) SL Bahuguna b) HL Bahuguna c) KL Bahuguna d) Amrita Devi

5. Stirred-tank bioreactors have been designed for
a) Addition of preservatives to the product
b) Purification of the product
c) ensuring anaerobic condition in the culture vessel
d) Availability of oxygen throughout the process

6. What did Chernobyl, Three Mile Island, the Love Canal and Bhopal, India all have in common?
a) They were all radioactive disasters
b) They were environmental problems caused by global warming
c) They were involved environmental racism
d) They were all technological disasters caused by solid wastes

7. Which of the following statement pertaining to pollutants is correct?
a) DDT is non-biodegradable pollutant
b) Excess fluoride in drinking water causes osteoporosis
c) Excess cadmium in drinking water causes black foot disease
d) Methyl mercury in water may cause 'Itai-Itai' disease

8. What device is fitted to automobiles for reducing the emission of poisonous gases like NO_2 and CO?
a) Catalytic converters b) Electrostatic precipitator
c) Scrubber d) Bag filter

9. Amrita Devi Bishnoi wildlife protection award is given to the individuals or communities from
a) Rural areas b) Urban areas c) NGOs d) Hilly areas

10. Which of the following are the indicators of pollution?
a) Lichen b) Fungi c) Algae d) None of these

11. To remove which pollutants, enzymatic filters are used?
a) Hydrocarbons b) Lead c) Nitrogen pollutants d) Chloride pollutants

12. What is the major cause of desertification?
a) Urbanization b) Greenhouse effect c) El Nino effect d) Both (a) and (c)

13. ESP is to arrest
a) Water pollution b) Air pollution c) Radioactive pollution d) Soil pollution

14. Which are sensitive to SO_2 pollution?
a) Mosses b) Algae c) Lichen d) Ferns

15. Reforestation is useful for
a) Increasing the fertility of soil b) Reducing floods
c) Preventing soil erosion and spread of deserts d) All of the above

16. Which of the following metals is a water pollutant and causes sterility in human being?
a) As b) Mn c) Mg d) Hg

17. Limit of BOD prescribed by Central Pollution Control Board for the discharge of industrial and municipal waste water into natural surface water, is
a) < 3.0 ppm b) < 10 ppm c) < 100 ppm d) < 30 ppm

18. Eutrophication is caused by
    a) Acid rain b) Nitrates and phosphates
    c) Sulphates and carbonates d) CO_2 and CO
19. Examples of regional pollution are
    a) Acid rain b) Smog c) Both (a) and (b) d) None of these
20. World Summit on Sustainable Development (2002) was held in
    a) Brazil b) Sweden c) Argentina d) South Africa
21. Which statement represents the harmful effect of depletion of earth's ozone layer?
    a) The average temperature of earth's surface will increase gradually
    b) The oxygen content of the atmosphere will decrease
    c) Increased amount of ultraviolet radiation will reach earth's surface
    d) Sea levels will rise as the polar ice caps will gradually melt
22. Which of the following statement is not correct?
    a) Ozone layer do not allow UV-B to reach the earth surface
    b) Ozone hole is an actual hole over Antarctica
    c) Halons are ozone depleting substances
    d) The active chlorine destroys ozone and convent it into O_2
23. Euro II norms were stipulated to control sulphur content at 350 ppm in ...A... and 150 ppm in ...B.... and aromatic hydrocarbons are to be contained at ...C...
    Complete the given statement by choosing appropriate option for A-C
    a) A-petrol, B-diesel, C-44% b) A-diesel, B-petrol, C-42%
    c) A-petrol, B-diesel, C-49% d) A-diesel, B-petrol, C-45%
24. World environment day is celebrated on
    a) 1st February b) 8th March c) 6th December d) 5th June
25. A lake with nutrients is called
    a) Trophic b) Euphotic c) Oligotrophic d) Eutrophic
26. Three mile island and chernobyl disasters are associated with accidental leakage of
    a) Radioactive wastes b) Industrial wastes c) Municipal wastes d) Hospital wastes
27. Ozone is spread in the swimming pool because
    a) It acts as disinfectant b) To absorbs UV radiations
    c) Ozone is easily available from O_2 d) All of the above
28. Which of the following methods are useful for solid waste disposal?
    I. Open burning
    II. Sanitary landfills
    III. Rag-pickers and kabadiwallahs
    IV. Natural breakdown
    V. Recycling
    VI. Incineration
    Choose the correct option
    a) I, II, III and IV b) I, II, III, IV and V c) II, III, IV, V and VI d) I, II, III, IV, V and VI
29. Checking of re-radiating heat by atmospheric dust O_3, CO_2 and water vapours is
    a) Green house effect b) Solar effect c) Ozone layer effect d) Radioactive effect
30. Of the following four metropolitan Indian cities, where polluted air hangs above like a cloud is
    a) Mumbai b) Delhi c) Kolkata d) Chennai
31. Which of the following are correctly matched?
    I. Arsenic poisoning - Black foot disease
    II. Secondary effluent treatment - Biological process
    III. Pyrolysis - Solid soil waste disposal
    IV. $Tubifex$ - Water pollution indicator

V. Biomagnification - Degradable pollutants

a) I,II,III and V b) I,III,IV and V c) II,III,IV and V d) I,II,III and IV

32. Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of stratospheric ozone?
    a) Damage to digestive system b) Increased liver cancer
    c) Neurological disorder d) Increased skin cancer
33. Irrepairable goods, computers and other electronic devices are known as
    a) a-wastes b) e-wastes c) c-wastes d) d-wastes
34. Consider the following statements
    I. Reforestation is the process of restoring a forest that once existed but was removed at some point of time in the past
    II. Reforestation may occur naturally in a deforested area
    III. A tree plantation movement or Van Mahotsava is being carried out in India since 1982
    Which of the statements given above are correct?
    a) I and II b) I and III c) II and III d) I, II and III
35. Scrubber is used to remove gases like
    a) CO_2 b) SO_2 c) CO d) NO_2
36. Consider the following statements about eutrophication
    I. Eutrophication is the natural ageing of a water body by nutrient enrichment
    II. The accelerated ageing of lakes due to sewage and agricultural and industrial wastes is called cultural or accelerated eutrophication
    III. The plant nutrients responsible for eutrophication are nitrates and phosphates
    IV. Phosphates and nitrates accelerate the growth of algae which utilise oxygen and may deoxygenate the water enough to kill the fish and other aquatic animals
    Which of the statements given above are correct?
    a) I and II b) I, II and III c) I, III and IV d) I, II, III and IV
37. A sewage treatment process in which a part of decomposer bacteria present in the waste is recycled into the starting of the process is called
    a) Cyclic treatment b) Activated sludge treatment
    c) Primary treatment d) Tertiary treatment
38. Cigarette smoking causes
    a) Skin cancer b) Blood cancer c) Bone cancer d) Lung cancer
39. Ozone saves the biosphere by absorbing the high energy radiation called
    a) Infra-red rays (IR) b) Ultraviolet rays (UV)
    c) X-rays d) Gamma rays
40. The fertile top soil is removed by human activities like
    a) Over-cultivation b) Unrestricted grazing
    c) Deforestation and poor irrigation practices d) All of the above
41. Which of the following statement is correct?
    a) Extensive use of chemical fertilizers may lead to eutrophication of nearby water bodies
    b) Both *Azotobacter* and *Rhizobium* fix atmospheric nitrogen in root nodules of plants
    c) Cyanobacteria such as *Anabaena* and *Nostoc* are important mobilizers of phosphates and potassium for plant nutrition in soil
    d) At present, it is not possible to grow maize without chemical fertilizers
42. Algal blooms imparts a distinct colour to water due to
    a) Their pigments
    b) Excretion of coloured substance
    c) Absorption of light by algal cell wall
    d) Formation of coloured chemicals in water facilitated by physiological degradation of algae
43. Pollution is not caused by

a) Thermal power plant b) Automobile
c) Radioactive power plant d) Hydroelectric power plant

44. The term 'biomagnification' refers to the
a) Growth of organisms due to food consumption
b) Increase in population size
c) Blowing up of environmental issues by man
d) Increasing in the concentration of non-degradable pollutants as they pass through food chain

45. Carbon dioxide is called green house gas because it is
a) Used in green house to increase plant growth b) Transparent to heat but traps sunlight
c) Transparent to sunlight but traps heat d) Transparent to both sunlight and heat

46. One of the following acts as secondary pollutant
a) Br_2 b) Cl_2 c) NO_2 d) HNO_3

47. Which of the following toxic materials was present in Minamata bay of Japan?
a) Cd b) Pb c) Mg d) Hg

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

49. Ecological sanitation is a sustainable system for handling human excreta, using dry composting toilets. Such 'Ecosave' toilets are working in
a) Asom and West Bengal b) Andhra Pradesh and Maharashtra
c) Kerala and Sri Lanka d) Karnataka and Andhra Pradesh

50. Common indicator organism of water pollution is
a) $Lemnapancicostata$
b) $Eichhorniacrassipes$
c) $Escherichiacoli$
d) $Entamoeba\ histolytica$

51. Kyoto protocol has specified the commitments of different countries
a) To mitigate climate changes b) Limit production of chlorofluorocarbons
c) To prepare a world climate programme d) None of the above

52. Which of the following groups of gases cause photochemical smog?
a) O_3PAN and CO b) HC, NO and PAN c) O_2,PAN and NO_2 d) O_2, PAN and NO_3

53. The phenomenon by which certain pollutants ($e.g.$, DDT, Mercury) accumulates in the body tissues in increasing concentration is called
a) Biological degradation b) Biological magnification
c) Eutrophication d) Bioprecipitation

54. Read the following statements carefully and select the correct ones
I. UV rays essential for the production as well as degradation of ozone gas
II. Ozone present in ionosphere acts as a shield absorbing UV radiation coming from the sun
III. One fourth of the incoming solar radiation is reflected by the atmospheric gases and clouds and only half of the incoming solar radiation falls on the earth's surface, heating it. Of this only a small portion is reflected back
a) I and II b) I and III c) II and III d) I, II and III

55. In India, the heaviest demand of forests is for
a) Fuel wood b) Timber wood
c) Wood for agricultural tools d) Medicines

56. The ultraviolet radiations in the stratosphere are absorbed by
a) O_3 b) O_2 c) CO_2 d) H_2SO_4

57. Carbon monoxide is a pollutant because it
a) Reacts withO_2 b) Inhibits glycolysis

c) Reacts with haemoglobin d) Makes nervous system inactive

58. It is estimated that out of the total global warming, the relative contribution of CO_2, CH_4, CFCsand N_2O are found respectively as
    a) 60%, 20%, 14% and 6%
    b) 6%, 14%, 20% and 60%
    c) 20%, 60%, 14% and 6%
    d) 20%, 14% ,60% and 6%
59. In big cities, the major atmospheric pollutant is
    a) Carbon monoxide and oxide of sulphur b) Hydrocarbon and hot air
    c) Pollens and Marsh gas d) Ozone
60. Steps taken by the Government of India to control air pollution include
    a) Compulsory mixing of 20% ethyl alcohol with petrol and 20% biodiesel with diesel
    b) Compulsory PUC(Pollution Under Control) certification of petrol driven vehicles,which tests for carbon monoxide and hydrocarbons
    c) Permission to use only pure diesel with a maximum of 500 ppm sulphur as fuel for vehicles
    d) Use of non-polluting Compressed Natural Gas(CNG) only as fuel by all buses and trucks
61. Which of the following plants is used for the purification of water?
    a) *Beggiatoa* b) *Chlorella* c) *Spirogyra* d) *Eichhornia*
62. Which of the following is non-biodegradable?
    a) Sewage b) DDT c) Livestock waste d) Market garbage
63. Minamata disease was caused due to the consumption of
    a) Sea food containing lot of cadmium b) Fish contaminated with mercury
    c) Ousters with lot of pesticide d) Sea food contaminated with selenium
64. Which one among the following is likely to have the highest level of DDT deposition in its body?
    a) Phytoplanktons b) Sea gull c) Crab d) Eel fish
65. *Escherichiacoli* is used as an indicator organism to determine pollution of water with
    a) Industrial effluents b) Pollen of aquatic plants
    c) Heavy metals d) Faecal matter

66. 'Bad' ozone is formed in
    a) Atmosphere b) Ionosphere c) Stratosphere d) Troposphere
67. Which Act was formulated in the year 1986?
    a) The Insecticide Act
    b) The Water (prevention and control of pollution) Act
    c) The Air (prevention and control of pollution) Act
    d) The Environment (protection) Act
68. The thickness of ozone in a column of air from the ground to the top of the atmosphere is measured in terms of
    a) Decibel units b) Pascal units c) Svedberg units d) Dobson units
69. The Montreal protocol refers to
    a) Persistent organic pollutants b) Global warming and climate change
    c) Substances that deplete the ozone layer d) Biosafety of genetically modified organisms
70. Green-house effect refers to
    a) Cooling of earth b) Trapping of UV rays c) Production of cereals d) Warming of earth
71. I. Radiation from nuclear waste is ...A... at a very high rate
    II. At low doses, radiations causes ...B...
    Complete the given statement by choosing appropriate option for A and B
    a) A-lethal; B-cancer b) A-cancer; B-mutation
    c) A-mutation; B-down syndrome d) A-down syndrome; B-cancer
72. A pollutant can best defined as it

a) Has natural geochemical cycles
b) Changes homeostasis of environment
c) Disturb natural flora of a place
d) Become stabilized in ecosystem forever

73. Global warming can be controlled by
I. reducing deforestation
II. planting trees (afforestation)
III. slowing down the growth of human population
IV. reduction of emission of greenhouse gases into the atmosphere
V. cutting down the use of fossil fuels
Which of the statement given above are correct?
a) I, II, III and IV b) II, III, IV and V c) I, III, V and IV d) I, II, IV and V

74. What is true about the Euro II norms?
a) It stipulates to control sulphur at 350 ppm in diesel and 150 ppm in petrol
b) It stipulates to reduce sulphur level to 50 ppm in petrol and diesel
c) It stipulates to reduce sulphur level to 200 ppm in diesel and petrol
d) It stipulates to reduce sulphur level to 200 ppm in diesel and 100 ppm in petrol

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

76. Consider the following statements about scrubber
I. It is used to remove gases like sulphur dioxide from industrial exhaust
II. In a scrubber, the exhaust is passed through a spray of water or lime
III. Water dissolves gases and lime reacts with sulphur dioxide to form a precipitate of calcium sulphate and sulphide
Which of the statements given above are correct?
a) I and II b) I and III c) II and III d) I, II and III

77. Excess atmospheric CO_2 increase green house effect asCO_2
a) Precipitates dust in the atmosphere
b) Reduces atmospheric pressure
c) Is opaque to infra red rays
d) Is not opaque to infra red rays

78. Removal of forest areas to fulfil the needs of growing human population is called
a) Deforestation b) Reforestation c) Depletion of forest d) Afforestation

79. Which of the following is a secondary air pollution?
a) Hydrocarbons
b) Smog
c) Particulate matter
d) Automobile exhausts

80. Maximum green house gases are released by
a) India b) Britain c) USA d) France

81. Good ozone is formed in
a) Atmosphere b) Ionosphere c) Stratosphere d) Troposphere

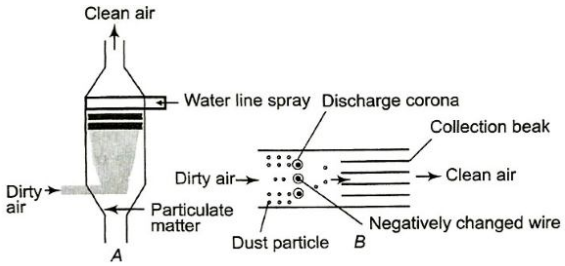
82. Ozone layer is depleted by
a) SO_2, NO_3 b) CFCs, CH_4, N_2O c) CO, CH_4, O_2 d) NO_2, CO_2

83. Catalytic converters, which are fitted into automobiles for reducing the emission of poisonous gases possesses which of the following metals used as catalyst?
a) Platinum b) Palladium c) Rhodium d) All of these

84. El Nino effect is closely associated with
a) Global warming b) Acid rain c) Greenhouse gases d) All of these

85. Formation of non-functional methaemoglobin causes blue-baby syndrome.This is due to
a) Excess of arsenic concentration in drinking water
b) Excess of nitrates in drinking water
c) Deficiency of iron in food
d) Increased methane content in the atmosphere

86. Given diagram represent two devices$A$ and B used to control air pollution. Identify them



a) A-Bag filter; B-Scrubber
b) A-Scrubber; B-Electrostatic precipitator
c) A-Scrubber; B-Bag filter
d) A-Electrostatic precipitator; B-Bag filter

87. One of the main reasons of soil erosion in India is
a) Jhum cultivation b) Deforestation c) Drought conditions d) Temperature
88. Maximum noise permissible during day time in residential areas is
a) 75 dB b) 55 dB c) 65 dB d) 45 dB
89. BOD increased by
a) Algae b) Moss c) Ferns d) Distillated wastes
90. When the noise was recognized as an air pollutant?
a) 1992 b) 1963 c) 1949 d) 1987
91. Green house effect is the cumulative result of the influences of certain gases. Identify the gas, which is not involved in this influence?
a) Methane
b) Chlorofluorocarbons
c) Nitrogen
d) Carbon dioxide
92. Taj Mahal marble is affected by
a) SO_2 b) O_2 c) O_3 d) NO_2
93. An international treaty, Montreal Protocol in 1987 to curb the emission of ozone depleting substances, was held at
a) Canada b) Kyoto c) Washington d) Rio de Janerio
94. The natural phenomenon of keeping earthworm due to presence of certain gases in the atmosphere is called
a) Global warming b) Ozone depletion c) Greenhouse effect d) El-Nino effect
95. Rise in temperature leads to deleterious changes in environment resulting in odd climatic changes called
a) Global warming b) El Nino effect c) La Nino effect d) Greenhouse effect
96. A lake with an inflow of domestic sewage rich in organic waste may result in
a) Drying of the lake very soon due to algal bloom
b) An increased production of fish due to lot of nutrients
c) Death of fish due to lack of oxygen
d) Increased population of aquatic food web organisms
97. Acid rain is mainly caused due to increase in the levels of the gas(es)
a) SO_2 only b) CO_2 only c) SO_2, CO_2 d) NO_2 and SO_2
98. Nutrient enrichment of a lake will cause
a) Eutrophication b) Stratification c) Biomagnifications d) Bioaccumulation
99. Catalytic converters
I. These are fitted into automobiles for reducing emission of poisonous gases like NO_2 and CO
II. They have expensive metals like platinum, palladium and rhodium as catalysts
III. As the exhaust emission passes through catalytic converter nitric oxide splits into nitrogen and oxygen: carbon monoxide is oxidized to carbon dioxide and unburnt hydrocarbons get burnt completely into CO_2 and H_2O
IV. Motor vehicles fitted with catalytic converter should use unleaded petrol because lead in the petrol inactivates the catalyst
Which of the statements given above are correct about catalytic converters?

a) I, II and III b) II, III and IV c) I, III and IV d) I, II, III and IV

100. Sound becomes a hazardous noise pollution if its level exceeds

a) 30 dB b) 80 dB c) 120 dB d) 150 dB

IMPORTANT PRACTICE QUESTION SERIES FOR NEET EXAM – 1 (ANSWERS)

1)	**a**	**2)**	**c**	**3)**	**b**	**4)**	**c**
5)	**a**	**6)**	**b**	**7)**	**d**	**8)**	**b**
9)	**b**	**10)**	**b**	**11)**	**b**	**12)**	**b**
13)	**c**	**14)**	**a**	**15)**	**d**	**16)**	**b**
17)	**a**	**18)**	**b**	**19)**	**d**	**20)**	**c**
21)	**b**	**22)**	**d**	**23)**	**a**	**24)**	**c**
25)	**a**	**26)**	**b**	**27)**	**a**	**28)**	**d**
29)	**c**	**30)**	**b**	**31)**	**c**	**32)**	**a**
33)	**d**	**34)**	**b**	**35)**	**c**	**36)**	**b**
37)	**b**	**38)**	**d**	**39)**	**a**	**40)**	**b**
41)	**d**	**42)**	**a**	**43)**	**d**	**44)**	**c**
45)	**c**	**46)**	**c**	**47)**	**a**	**48)**	**a**
49)	**a**	**50)**	**d**	**51)**	**a**	**52)**	**c**
53)	**d**	**54)**	**d**	**55)**	**a**	**56)**	**d**
57)	**d**	**58)**	**b**	**59)**	**a**	**60)**	**c**
61)	**d**	**62)**	**a**	**63)**	**d**	**64)**	**a**
65)	**d**	**66)**	**b**	**67)**	**c**	**68)**	**a**
69)	**a**	**70)**	**c**	**71)**	**d**	**72)**	**b**
73)	**a**	**74)**	**c**	**75)**	**a**	**76)**	**c**
77)	**d**	**78)**	**b**	**79)**	**b**	**80)**	**c**
81)	**d**	**82)**	**b**	**83)**	**d**	**84)**	**a**
85)	**a**	**86)**	**a**	**87)**	**c**	**88)**	**a**
89)	**b**	**90)**	**c**	**91)**	**a**	**92)**	**b**

93) d 94) b 95) a 96) a
97) d 98) a 99) c 100) a

1 **(a)**
A biotic components includes the non-living physico-chemical factors of the environment. These components not only affect the distribution and structure of organisms but also their behavior and inter-relationships. Abiotic factors include inorganic substances, organic compounds, climatic factors and edaphic factors

2 **(c)**
The shape of pyramid of energy is always upright as energy always decreases at each successive level (*i.e.,* from producers to consumers).

3 **(b)**
Organic remains (dead plant parts, animal remains and excretions) are also called detritus. A food chain, which begins with detritus or dead organic matter is called detritus food chain. The energy passes into decomposers and detrivores, then to smaller carnivores, then to larger carnivores and so on.

4 **(c)**
The rate of total capture of energy or the rate of total production of organic material is **gross primary productivity**, while the balance or biomass remaining after meeting the cost of respiration of producers is net primary productivity. Hence, gross productivity has highest value in grassland ecosystem.

5 **(a)**
Ecosystem is an open system. It receive input in the form of solar energy and matter. It results in productivity or synthesis of organic food. Food with its contained energy passes through various components of ecosystem

6 **(b)**
Phosphorus and sulphur.
In sedimentary cycle, the main reservoirs are soil and rocks, $e.g.$,sulphur cycle, phosphorus cycle, etc.

7 **(d)**
Tropical rain forests (tropical dense forests) occur near the equator where rainfall and temperature are very high.

8 **(b)**
In a lake, there are littoral zone, limnetic zone and profundal zone. In limnetic zone, the producers are mainly phytoplanktoni algae which are diatoms, green algae and blue green algae. In profundal zone, the organisms mainly depend for their food on the littoral and limnetic zone.

9 **(b)**
A-10%, B-Lindeman, C-1942

10 **(b)**
The process of 'humification' can occur naturally in soil or in the production of compost. It leads to accumulation of dark amorphous substance called humus

11 **(b)**
Total energy fixed by an ecosystem is called gross production

12 **(b)**
Detrivores feeds on and breakdown the dead plants and animal matter, returning essential nutrients to the ecosystem. Detritivores includes microorganisms such as bacteria and protists as well as larger organisms such as fungi, insects, worms and isopod crustaceans

13 **(c)**
All the animals that depend for food on plants are called consumers. *Consumers are divided*

into the following categories

Primary consumers Animals which feed directly on plants, *i.e.,* herbivores

Secondary consumers Consumers that feed on primary consumers,*i.e.,* carnivores

Tertiary consumers Consumers that feed on secondary consumers. Grazers is one of the category of consumers

15 **(d)**

Nitrogen and carbon cycle.

In sedimentary cycle, the main reservoirs are soil and rocks, *e. g.*,sulphur cycle, phosphorus cycle, etc.

17 **(a)**

Producers

18 **(b)**

The zone of transition between two different communities presenting a situation of overlapping is known as **ecotone**.

19 **(d)**

The major functions of an ecosystem includes

(i) Productivity (ii) Decomposition

(iii) Energy flow (iv) Nutrient cycling

21 **(b)**

Sun.

A much less fraction of energy flows through grazing food chain in ecosystem terrestrial. Energy for the food chain comes from the sun. Food chain adds energy into the ecosystem

22 **(d)**

Free energy is the portion of a system's energy that can perform work when temperature is uniform throughout the system as in a living cell.

Enthalpy is the total energy including usable energy and unusable energy.

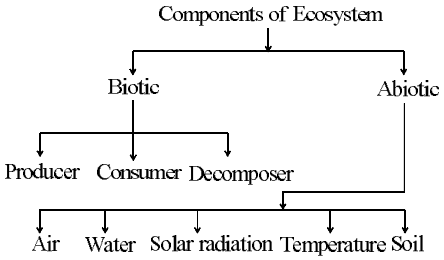
23 **(a)**

Xerarch succession is plant succession which takes place in dry area leading to a successional series from xeric to mesic conditions

24 **(c)**

Living organisms.

The components of an ecosystem may be divided into two main types, *i.e.,* **Biotic component** comprising the various kinds of living organisms and **Abiotic component** consisting of environmental factors



25 **(a)**

Prosopis is a tree found in scrub. *Saccharumofficinarum* is grass, which is cultivated. *Shorearobusta* (sal) is tree found in moist tropical forests. *Acacia catechu* is tree found in dry deciduous forests.

26 **(b)**

A-Top carnivore, B-Detritus, C-Frog

27 **(a)**

Some workers differentiate into two more categories of living beings amongst the biotic components of an ecosystem. These are detrivores and parasites. Parasites belong to

diverse groups, $e.g.$, bacteria, fungi, protozoans, worms, etc. Every type of living being can be attacked by parasites. Detrivores or scavengers are animals which feed on dead bodies of other organisms, $e.g.$,termites, carrion beetles. They are helpful in quick disposal of the dead bodies

28 **(d)**

Phosphorus.

In sedimentary cycle, the main reservoirs are soil and rocks, $e.g.$,sulphur cycle, phosphorus cycle, etc.

29 **(c)**

Pyramid of energy represents amount of energy traped per unit area and time in different trophic levels of a food chain. It is always upright.

30 **(b)**

The rate of synthesis of energy containing organic matter by any trophic level per unit area in unit time is described its productivity. It is measured as weight ($e.g.$, $g/m^2/yr$) or energy ($e.g.$, $kcal/m^2/yr$). The amount of energy accumulation in green plants as biomass or organic matter per unit area over a time period through the process of photosynthesis is known as primary productivity. Primary productivity is expressed in term of weight (g^{-2}) or energy (kacl m^{-2}). C_4-plants area more productive thatC_3 plants. Sugar cane is most productive crop being efficient in trapping light

31 **(c)**

The number of trophic levels in the food chain is restricted as the transfer of energy follows 10% law. This law states that only 10% of the energy is transferred to next trophic level from the lower trophic level

32 **(a)**

In a terrestrial ecosystem, plant grows by manufacturing food from carbon dioxide of air and water and minerals of soil with the help of chlorophyll and sunlight. Plants, thus acts as the producer on land

In a pond, phytoplankton (rooted and floating plants) synthesise food materials from dissolved nutrients by photosynthesis. They, thus act as the producers. Consumers are not producers. They eat (consume) producers

33 **(d)**

In both hydric and xerharch succession ultimately lead to mesarch conditions. The pioneer species on bars rock is always lichen

34 **(b)**

Phytoplanktons are the producers in ocean's ecosystem.

35 **(c)**

An inverted pyramid of biomass may occasionally be observed in marine communities

36 **(b)**

Vertical distribution of different species occupying different levels is called stratification. For example, in forest ecosystem, trees occupies the top vertical strata, shrubs occupies the second and herbs, grasses occupies the bottom layer. It is not a functional unit of an ecosystem

37 **(b)**

In a pond ecosystem, fishes occupy the more than one trophic levels.

38 **(d)**

Humus is dark coloured amorphous substance rich in lignin and cellulose

39 **(a)**

Maximum energy is found in first trophic level (T_1)$i.e.$, produces.

40 **(b)**

Secondary consumer

Grass (Producer) → Grasshopper (Primary consumer) → Frog (Secondary consumer) → Snake (Tertiary consumer) → Hawk (Quaternary consumer)

41 **(d)**

The organisms, which attack dead animals are the present at end of food chain and known as decomposers. Decomposers are heterotrophic organisms, mostly bacteria and fungi, which lives on dead organic matter or detritus. They release different enzymes from their bodies into the dead and decaying plant and animal remains, leading to the release of simple inorganic substances. Thus, they play an important role in the cycling of minerals

42 **(a)**

Pyramid of energy is a graphic representation of the amount of energy trapped per unit time and area in different trophic levels of a food chain with producers forming the base and top carnivores the top. The pyramid of energy is **always upright**.

43 **(d)**

There is some sort of relationship between the number, biomass and energy contents of the producers and consumers of different orders in any ecosystem. These relationships, when represented in diagrammatic ways are called ecological pyramids. The concept of pyramid was proposed by Charles Elton (1927) so, they are also called as Eltonian pyramids

44 **(c)**

The formula of ecological efficiency is

$$= \frac{\text{Energy in biomass production at a trophic level}}{\text{Energy in biomass prodcution at prevense trophic level}} \times 100$$

We know that plant (producers) convent the photo energy into chemical energy and according to Lindman rule of energy transfer only 1% of energy will be transferred from one trophic level to other trophic level

So according to the formula of ecological efficiency primary consumer will have less ecological efficiency then secondary consumers because energy in biomass be production at first tropical level (*i.e.,* producers level) will more while ecological efficiency of secondary consumer will be high then primary consumer because in secondary consumer the energy produced in biomass at previous tropical level will be less then producer level

45 **(c)**

In tree ecosystem, the pyramid of number is inverted because only one tree has many consumers like birds, insects, etc.

While in pond, desert and forest ecosystem, the pyramids of numbers are upright because producers are large in number.

46 **(c)**

Producers → Primary consumers → Secondary consumers
(Grass) (Zebra) (Lion)

47 **(a)**

Ecosystem	**Shape of Pyramid**
Pyramid of number	
Grassland	Upright
Forest (tree)	Inverted
Aquatic (pond)	Upright
Pyramid of biomass	
Grassland	Upright

Forest	Upright
Aquatic (lake)	Inverted
Pyramid of energy	
All ecosystems	Upright

48 **(a)**

The process by which humus is further degraded by some microbes to release inorganic nutrients is called mineralisation

49 **(a)**

The process by which humus is degraded by some microbes to release inorganic nutrients is called mineralisation

50 **(d)**

Halophytes (*i.e.,* plants growing in saline soils) show the characteristics of xerophytes, *e.g., Sueda, Tamarix, Atriplex*, etc. These characters include succulence, thick cuticle, sunken stomata, high osmotic pressure, presence of anthocyanin, tannins, proline and other organic solutes, well developed root system etc.

51 **(a)**

Secondary succession or subsere is ecological succession that takes place in a recently denuded area which still contains a lot of organic debris, remains and propagules of previous living organisms. It is more common and caused by baring of an area due to forest fires, deforestation, excessive overgrazing, landslides, earthquakes, repeated floods, etc. only 50 to 100 years are required for establishment of a grassland over a recently denuded area. Formation of forest requires 100 to 200 years.

52 **(c)**

Phytoplanktons are found in **littoral zone**, which is shallow water region.

53 **(d)**

A primary consumers or herbivores are animals which feed on plants or plant products, *e. g.*,grasshoppers and several other insects, rabbit, hare, field mouse, deer, antelope, cow, elephant, zooplankton, tadpoles and some fishes

54 **(d)**

Burning of wood, forest fire, volcanic activity and combustion of organic matter and fossil fuels area are some essential sources for releasing CO_2 in the atmosphere

56 **(d)**

There are certain limitations of ecological pyramids, they are

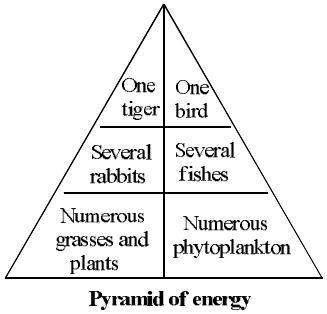
(i) It do not take into account the same species belonging to two or more trophic levels

(ii) It assumes a simple food chain, whereas in nature it does not exist

(iii) Saprophytes/decomposers are not given any place in ecological pyramids

57 **(d)**

The pyramid of energy is always upright whatever will be the case. It represents the total amount of energy utilised by different level organisms in unit area over a period of time



Pyramid of energy

58 **(b)**

A good example of succession is the hydrarch succession or hydrosere succession, in which, a pond and its community are converted into a land community. In their reed swamp stage, amphibious plants grow where the water body becomes shallow (0.3-1.0 m), *e.g.,Sagittaria*. *Juncus* shows sedge-medow stage, *Salix* shows woodland stage, while *Trapa* shows rooted-floating stage.

59 **(a)**

The rate of formation of new organic matter by consumers is called secondary productivity

60 **(c)**

Food web is a network of food chains, interconnected at various trophic levels, so as to form a number of feeding alternatives amongst the different organisms of a biotic community.

61 **(d)**

In successive seral stages, there is not only a change in the species diversity of organisms present but there is also an increase in the number of species. Succession of plants and animals communities occurs side by side

62 **(a)**

Nitrogen cycle.

In gaseous cycles, the main reservoirs of chemical are the atmosphere and ocean, *e. g.*,carbon cycle, nitrogen cycle, oxygen cycle, etc.

63 **(d)**

(i) Deserts have the lowest primary productivity as the soil is deficient in moisture

(ii) Some plants have more efficiency to trap sunlight (sugar cane), so they accumulate more primary productivity

(iii) Productivity is maximum in the coral reefs because they grow in areas having good light, enough warm water and abundant nutrients

64 **(a)**

Pyramid of energy is a picture of rates of passage of food mass through the food chain. It is **always upright**, as in most of the cases there is always a gradual decrease in the energy content at successive trophy levels.

65 **(d)**

In a food chain a plant is primary producer. Producers are autotrophic organisms, which alone are able to manufacture organic food from inorganic raw materials in the process of photosynthesis

66 **(b)**

The highest primary productivity in terms of per unit area is of estuaries > Swamps and marrhes >Tropical rair forest > Temperate forest whiclein terms of average would net primary.Production is of opern ocean > Tropical rain forest > Temperate rainforest > Sauanna > Nothern coniferous forest

67 **(c)**

Great barrier reef along the North-eastern Australia is an ecosystem. It is about 2000 km long and up to 150 km from shore.

68 **(a)**

A much less fraction of energy flows through grazing food chain in ecosystem terrestrial. Energy for the food chain comes from the sun. Food chain adds energy into the ecosystem

69 **(a)**

Rain is required for higher primary productivity. Desert have the lowest primary productivity as the soil is deficient in moisture

70 **(c)**

The ultimate source of entire energy used by living things in an ecosystem is sunlight. Solar energy received by an ecosystem depends on the latitude, slope, cloud cover, air pollutants, etc.

71 **(d)**

Climax community is the stable, self perpetuating and final biotic.

Climax community is the stable, self perpetuating and final biotic community that develops at the end of biotic succession and is in perfect harmony with the physical environment. It is also termed as climatic climax community

72 **(b)**

Stratification involves vertical changes, within the community. Stratification in a forest community (especially tropical forests) is most complicated, where as many as five vertical sub-divisions may be recognized, *i.e.,* subterranean sub-division, forest floor, herbaceous vegetation, shrubs and trees.

74 **(c)**

Only 10% of the herbivore productivity is utilised for raising productivity of primary carnivores. The rest is consumed in ingestion, respiration, maintenance of body heat and retain only 10% of energy present in primary carnivores. It is called 10% law which was proposed by Lindeman, 1942

75 **(a)**

Ecological succession is directional because succession proced in a direction and periodical. Primary succession is a biotic succession that occurs on a previously sterile or primarily bare area, $e.g.$,newly exposed sea floor igneous rocks, sand dunes, new cooled lava sediment, etc.

76 **(c)**

At 40° North and South, the heat gain through insolation approximately equals to the heat loss through terrestrial radiation.

77 **(d)**

Herbivores (plant-eating animals) are depends upon producers (plant) so, rabbits are herbivores

79 **(b)**

Pyramid of number is used to know how many organisms are present at each level of a food chain

80 **(c)**

For food, light and space, the greatest competition is between two closely related species of same niche. Struggle for existence (competition) may be intraspecific (*i.e.*, between individuals of the same species), interspecific (*i.e.,* between different species) and extra specific (*i.e.*, between individual and its environment).

81 **(d)**

Human activities like deforestation and massive burning of fossil fuel for energy and transport have significantly increased the rate of release of CO_2 into the atmosphere

82 **(b)**

In gaseous cycles, the main reservoirs of chemical are the atmosphere and ocean, $e.g.$,carbon cycle, nitrogen cycle, oxygen cycle, etc.

83 **(d)**

Producers constitute the first trophic level or base of a food chain. Producers are autotrophic organisms, which alone are able to manufacture organic food from inorganic raw materials in the process of photosynthesis

84 **(a)**

Stability is the power of a system to be in their state against unfavourable factor. Resilience is the capability of regaining its original shape or position after being deformed. Hence, it has low stability and high resilience.

85 **(a)**

Productivity of tropical rainforest is highest. The tropical rain forest covering 300,000 km^2

area. They contain more than 50% of total flora and fauna of the world.

86 **(a)**

In a pond ecosystem, **producers** include phytoplankton (*e.g.,* diatoms, *Chlorella*, *Spirogyra, Chlamydomonas*, etc), free floating macrophytes(*e.g.,Lemna, Azolla*), suspended macrophytes(*e.g., Utricularia, Hydrilla*), submerged plants (*Vallisneria*), floating leaved plants (*e.g., Nelumbo*), emergent plants (*Sagittaria*) etc.

87 **(c)**

Both (a) and (b).

An ecosystem may be defined as a structural and functional unit of the biosphere, comprising living organisms and their non-living environment that interact by means of food chains and chemical cycles resulting in energy flow, biotic diversity and material cycling to form a stable, self-supporting system

88 **(a)**

Population of two or more species, whose geographical ranges or distribution concide or overlap are known as **sympatric species**.

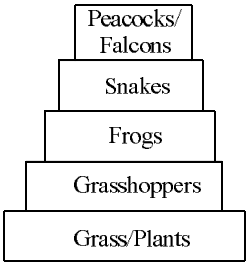
Allopatric species occupy different vertical zones in the same geographical area.

Parapatric species do not overlap but continuous, *i.e.,* touch each other.

Ring species are characterized by circular or looped geographical distribution.

89 **(b)**

In a grassland ecosystem, a larger number of grass plants or herbs support a fewer number of grasshoppers that support a still smaller number of frogs, the latter still smaller number of snakes and the snakes very few peacocks or falcons



90 **(c)**

Buried or cut forest already has soil humus and some vegetation (underground stems). So in buried or cut forest, succession is easy and is completed

91 **(a)**

Each trophic level has a certain mass of living material at a particular time called the standing crop. The standing crop is measured as the biomass of living organisms (biomass), as the number in a unit area

92 **(b)**

We know that plant only utilisexd 1-2% of total energy incident on earth. In the given dustion 100000 Kcal/m^2/yr salar radiation is incident on earth. So plant producer utilize 1% of 100000 kcal m^2/yr and that 1% is

$$= \frac{100000 \times 1}{100} = 1000 \text{ kcal/m}^2\text{/yr}$$

And from produces to the next level only 10% will goes, so $\frac{1000 \times 10}{100} = 100$ kcal/m^2/yr will be transferred to primary consumer which is called secondary production

94 **(b)**

By the process of leaching, water-soluble inorganic nutrients go down into the soil horizon and get precipitated as unavailable salts

95 **(a)**

Climate.

Climax community is the stable, self perpetuating and final biotic community that develops at the end of biotic succession and is in perfect harmony with the physical environment. It is also termed as climatic climax community

96 **(a)**

A population consists of organisms of a particular species and has characteristics like

natality, mortality, age structure growth dynamics, etc. When several populations share a common habitat and its resources, they interact among themselves and develop into a biotic community. Hence, community is a larger unit than a population.

97 **(d)**
The end result of decomposition is the production of dark brown, smelling, humus rich organic matter and inorganic substance like carbon dioxide, water and nutrients

98 **(a)**
In sedimentary cycle, the main reservoirs are soil and rocks, *e. g.*,sulphur cycle, phosphorus cycle, etc.

99 **(c)**
A certain mass of living material at each trophic level of an ecosystem at a particular time is called **standing crop**. The standing crop is measured as the mass of living organisms (biomass) or the number in a unit area.

IMPORTANT PRACTICE QUESTION SERIES FOR NEET EXAM – 2 (ANSWERS)

1)	**a**	**2)**	**b**	**3)**	**a**	**4)**	**a**
5)	**d**	**6)**	**a**	**7)**	**a**	**8)**	**a**
9)	**a**	**10)**	**a**	**11)**	**a**	**12)**	**a**
13)	**b**	**14)**	**c**	**15)**	**d**	**16)**	**b**
17)	**b**	**18)**	**b**	**19)**	**c**	**20)**	**b**
21)	**c**	**22)**	**a**	**23)**	**b**	**24)**	**d**
25)	**d**	**26)**	**a**	**27)**	**a**	**28)**	**d**
29)	**a**	**30)**	**b**	**31)**	**d**	**32)**	**d**
33)	**b**	**34)**	**a**	**35)**	**b**	**36)**	**d**
37)	**b**	**38)**	**d**	**39)**	**b**	**40)**	**d**
41)	**a**	**42)**	**a**	**43)**	**b**	**44)**	**d**
45)	**c**	**46)**	**b**	**47)**	**d**	**48)**	**b**
49)	**c**	**50)**	**c**	**51)**	**a**	**52)**	**c**
53)	**b**	**54)**	**b**	**55)**	**a**	**56)**	**a**
57)	**c**	**58)**	**a**	**59)**	**a**	**60)**	**d**
61)	**d**	**62)**	**b**	**63)**	**b**	**64)**	**b**
65)	**d**	**66)**	**d**	**67)**	**d**	**68)**	**d**
69)	**c**	**70)**	**d**	**71)**	**a**	**72)**	**b**
73)	**d**	**74)**	**a**	**75)**	**b**	**76)**	**d**
77)	**c**	**78)**	**a**	**79)**	**b**	**80)**	**c**
81)	**c**	**82)**	**b**	**83)**	**d**	**84)**	**a**
85)	**b**	**86)**	**b**	**87)**	**b**	**88)**	**b**
89)	**a**	**90)**	**a**	**91)**	**c**	**92)**	**a**
93)	**a**	**94)**	**c**	**95)**	**b**	**96)**	**c**
97)	**d**	**98)**	**a**	**99)**	**d**	**100)**	**b**

2 **(b)**
Ozone depletion is occurring widely in the strotasphere, the depletion is particularly marked over the Antarctic region. This has resulted in formation of a large area of thinned ozone layer, commonly called as ozone hole

3 **(a)**
Prolonged intake of fluoride polluted water causes stiffing of bone and joints particularly spinal cord. Due to affinity with calcium, fluoride stores in bones which causes mottling of teeth, bone pains and outward bending of kegs from the knees. This is known as **Knock Knee Syndrome.**

4 **(a)**

Sundar Lal Bahuguna.

Chipko Movement was started in Garhwal, Himalayas in 1974 by Shri Sundar Lal Bahuguna to prevent cutting down of trees. Local woman hugged trees to prevent their cutting by the contractors

5 **(d)**

The most common type of aerobic bioreactors in use today is the stirred-tank reactor,which may feature a specific internal configuration designed to provide a specific circulation pattern.The stirred-tank bioreactor have been designed for availability of oxygen throughout the process.

6 **(a)**

They were all radioactive disasters

7 **(a)**

DDT, BHC, PCBs, etc are non-biodegradable pollutants, which are not degraded easily and are long lasting in the environment.

8 **(a)**

Catalytic converters are fitted into automobiles for reducing emission of poisonous gases like NO_2 and CO. They have expensive metals like platinum-palladium and rhodium as catalysts

9 **(a)**

In 1731, a Bishnoi woman, Amrita Devi showed **exemplary** courage by hugging a tree to prevent its cutting. Government of India has recently instituted the Amrita Devi Bishnoi Wildlife Protection Award for individuals or communities from rural areas that have shown extraordinary courage and dedication in protecting wildlife

10 **(a)**

Lichens are extremely sensitive to pollutants in the atmosphere and thus, they can be used as bio-indicator of air quality. Their sensitively results from their ability to absorb substances dissolved in rain and dew.

11 **(a)**

Combined biological and enzymatic treatment are used to remove phenol Chydrocarbony. Tyrosinase extraxted from mushroom *Agaricus bisporus* was used in the removal.

12 **(a)**

Urbanization is the major cause of disertification

13 **(b)**

One of most appreciated air pollution cleaner system,ESP is widely used in various industries.It is applicable to pollutants particulate matter and hazardous air pollutants such as mostmetals.Wet ESPs are often used to control acid mists and can provide incidental control of volatile organic compounds.

14 **(c)**

Lichens are sensitive to SO_2environment. They cannot grow in sulphur dioxide polluted area. So, lichens are called pollution indicating plants.

15 **(d)**

Reforestation is an inexpensive but slow process for flood control. Reforestation improve soil fertility and reduce soil erosion

16 **(b)**

Mn causes sterility, eye disease, loss of memory or loss of vision in human beings.

17 **(b)**

The Central Pollution Control Board prescribed the BOD limit for the discharge of industrial and municipal waste water as < 10 ppm.

18 **(b)**

Eutrophication is the excessive nutrient enrichment of a water body. It is caused due to the addition of domestic sewage, phosphates, nitrate, etc.

19 **(c)**

Acid rain and smog are example of regional pollution.

Acid rain is caused mainly by oxides of sulphur and nitrogen and has a pH of 4 or 4.5. once in the air these oxides may react with moisture to form H_2SO_4 and HNO_3.

SO_2(oxidized) $\longrightarrow SO_3 + H_2O \longrightarrow H_2SO_4$

NO(oxidized) $\longrightarrow NO_2 + H_2O \longrightarrow HNO_3$

Smog is harmful mixture of smoke and fog. It consists of mixture of primary and secondary pollutants (*eg*. Hydrocarbons, NO_2, PAN,HCHO).

20 **(b)**

In 1992, world leaders convened an **Earth Summit**in **Rio de Janeiro, Brazil**, in search of international agreements that could help to save the world from pollution, poverty and the waste of resources. Another Earth Summit was convened from 26th August to 4th September 2002 in Johannesburg, South Africa.

21 **(c)**

Depletion or thining of ozone layer allows harmful UV rays to reach earth and causes skin ageing, skin cancer, cataract, etc.

22 **(a)**

Ozone hole is not an actual hole but an area of extreme reduction in ozone concentration in the ozone layer in stratosphere

23 **(b)**

A-diesel, B-petrol, C-42%

24 **(d)**

World environment day is celebrated on 5th June

25 **(d)**

A lake highly enriched with nutrients is called eutrophic.

26 **(a)**

Radioactive wastes.

Nuclear energy was assumed to be a natural, non-polluting way of electricity generation till the incidents at Three Mile Island and Chernobyl. It is now considered as the most potent pollutant

Leakage of radioactive materials from thermal power plants and unsafe disposal of radioactive wastes are the main causes of radioactive pollution

28 **(d)**

Methods of Solid Waste Disposal

(i) **Open Burning** Municipal waste is reduced by burning in open dumps but the unburnt waste serve as the breeding ground for rats and flies

(ii) **Sanitary Landfills** Wastes are dumped in a depression or trench after compaction and covered with dirt. Seepage of chemicals from these landfills can pollute underground water resources

(iii) **Rag-pickers and Kabadiwallahs** Wastes are collected and separated out into reusable or recyclable categories

(iv) **Natural Breakdown** The biodegradable materials are kept into deep pits in the ground for natural breakdown

(v) **Recycling** E-wastes can be recycled in specifically built facilities or manually to recover important metals

(vi) **Incineration** Majority of e-wastes generated in developed world is exported to developing world where they are incinerated

29 **(a)**

The main gases responsible for green house effect are CO_2, CH_4, CFCs, O_3, etc.

30 **(b)**

In Delhi, polluted air hangs above like a cloud.

31 **(d)**

Biomagnification or **biologicalamplification** is the passing of non-degradable pollutants like pesticides (DDT), etc, into the food chain and increasein amount per unit weightof organisms with the rise in trophic level due to accumulation in the body.

32 **(d)**

Increasing skin cancer and damages DNA and proteins in living organisms are the result of ozone depletion

33 **(b)**

Electronic waste (e-waste) describes loosely, discarded surplus, obsolete or broken electrical or electronic devices. Environmental groups claim that the informal processing of e-waste in developing countries cause serious health and pollution problems.

34 **(a)**

Reforestation is restoring a forest cover over an area where one existed earlier but was removed at some point of time in the past. It may occur naturally in a deforested area.
A tree plantation movement or Van Mahotsava is being carried out in India since 1950. Under this movement, both government and private agencies perform tree plantation during July and February every year. In these months soil has sufficient water to support the growth of plant

35 **(b)**

SO_2.
A scrubber can remove gases like sulphur dioxide. In a scrubber, the exhaust is passed through a spray of water or lime

36 **(d)**

Eutrophication is excessive growth of algae, plants and animals in water-bodies due to the nutrient enrichment particularly with nitrogen and phosphorous. Eutrophication is both natural and accelerated. Natural eutrophication is nutrient enrichment of a water-body due to natural ageing
Accelerated eutrophication is nutrient enrichment of water-bodies plants and due to human activities like passage of sewage, industrial effluents and run off from fertilised fields rich in nitrates and phosphates. Nutrients present in sewage, agriculture wastes and fertilisers cause dense growth of plants and planktonic algae. These are toxic to animals and humans

37 **(b)**

The activated sludge treatment involves the decomposition of organic matter through sewage fungus and decomposer bacteria by aeration in oxidation tanks. This aeration helps in the oxidation of sludge.

38 **(d)**

Carcinogen		Cancer tissue
Cigarette smoke	-	lungs
Soot,coal tar	-	Skin

Leukamemia is blood cancer resulted due to unchecked proliferation of White Blood Cells(WBCs).

39 **(b)**

Ozone (O_3) is a gas, which is present as a layer in the stratosphere. It absorbs the high energy radiations or ultra violet (UV) rays from sun and protects us from the harmful effects of these radiations.

40 **(d)**

Over cultivation, unrestricted grazing deforestation and poor irrigation practices.

Soil erosion occurs when the soil is blown away by the wind or washed away by the rain. Human play a major role in soil erosion through their use and abuse of natural resources, for example deforestation, grazing, faulty farming systems, high crop intensity, housing construction by cutting plant mining, etc.

41 **(a)**

Eutrophication is a natural state in many lakes and ponds, which have a rich supply of nutrients. Generally, it occurs due to excessive use of chemical fertilizers and causes foul smell of water and death of aquatic organisms.

42 **(a)**

Algal blooms impart a distinct colour to water due to their pigments

43 **(b)**

Hydroelectric power plants do not cause pollution. The **thermal power plants** and **automobiles** cause air pollution. The chief pollutants of thermal power plants are fly ash, So_2, hydrocarbons and other gases while the pollutants of automobiles are CO hydrocarbons, SPM and other gases.

44 **(d)**

The phenomenon of increasing concentration of harmful substances inside the body of organism at successive trophic level is known as **biomagnification**. The pesticides, DDT, inorganic nitrate and non-degradable pollutants enter into the body of plants and animals through food chain.

45 **(c)**

The excess of amount of CO_2 forms a thick 'blanket' in the atmosphere which is transparent to sunlight but absorbs infra-red radiation trapping heat near the earth's surface. In this Way, due to CO_2blanket, the earth's atmosphere works very much like a green house which causes warming up of the interior. So, carbon dioxide is called green house gas.

46 **(b)**

Primary pollutants are the pollutants which enter the air directly from the source, e.g., NO_2, Br_2, Cl_2, CO, DDT, etc.

Secondary pollutants develop from the interaction of primary pollutants and atmosphere constituents, e.g.,oxides of nitrogen react with atmospheric moisture (water vapour) and from HNO_3which results in acid rain.

47 **(d)**

Minamata bay of Japan was polluted by mercury (Hg), which resulted into Minamata disease.

48 **(b)**

The Montreal protocol on substances that deplete the ozone layer is a landmark international agreement designed to protect the stratospheric ozone layer. The treaty was originally signed in 1987 (effected in 1989) and substantially amended in 1990 and 1992. The Montreal protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere-chlorofluorocarbons(CFC_s), halons, carbon tetrachloride and methyl chloroform-are to be phased out by 2000(2005 for methyl chloroform).

49 **(c)**

Kerala and Sri Lanka.

An ecologically compatible system of disposal of human excreta is the use of dry composting toilets, called ecosave toilets. No water is required. Human excreta is converted into a resource as it forms natural fertilizer. Ecosan toilets are already working in many parts of Kerala and Sri Lanka

50 **(c)**

Since, large populations of *Escherichia coli* are found in human colon, the presence of E. coli in water indicates that, it has been contaminated with faecal matter. Thus, E. *coli* is

commonly known as indicator of water pollution.

51 **(a)**

Kyoto protocol has specified the commitments of different countries to mitigate climate changes.

52 **(c)**

O_3,PAN (Peroxy Acetyl Nitrate) and NO_2 are responsible for photochemical smog.

53 **(b)**

Many pesticides, such as DDT, aldrin and dieldrin, have a long life time in the environment. They are fat soluble and generally non-biodegradable. They get incorporated into the food chain and ultimately gets deposited in the fatty tissues of animals and humans

In the food chain, because of their build up, they get magnified in the higher trophic levels called biological magnification. The phenomenon of biological magnification is also reported for certain other pollutants, such as heavy metals like lead, mercury and copper and radioactive substances as strontium-90

54 **(b)**

All of the given statements are correct except II

Ozone present in stratosphere acts as a shield absorbing UV radiation coming from the sun

55 **(a)**

In India, the heaviest demand on forests is for fuel wood

56 **(a)**

Ozone layer is confined to the stratosphere. It is formed when sunlight reacts with O_2molecules. The ozone protects the earth from harmful UV-rays by absorbing them.

57 **(c)**

Carbon monoxide is a pollutant. It is a poisonous gas. Hbhas maximum affinity for CO.

58 **(a)**

The rise in concentration of green house gases resulting in increasing the global mean temperature. It is called global warming. The various green gases are CO_2 (warming effect 60%),CH_4(effect 20%),chlorofluorocarbons (effect 14%) and nitrogen oxide (effect 6%).

59 **(a)**

CO and oxides of sulphur from automobiles exhaust and smoke from factories is the main cause of pollution in big cities.

60 **(d)**

Air pollution problem in India become so serious that a public interest litigation (PIL) was filed in the supreme court. Under its directives, the government was asked to take appropriate measures including switching over the entire fleet of public transport from diesel to **compressed naturalgas** (CNG).

61 **(d)**

Eichhornia and certain phytoplanktons have capacity of purification of water. Cells of these plants uptake and accumulate heavy metals and other toxicants of polluted water. Organic pollutants of water like petroleum can be degraded with the help of bacteria *Pseudomonas*.

Beggiatoa is a sulphur bacteria which oxidizes hydrogen sulphide to sulphar.

Chlorella and *Spirogyra* are green algae, which do not help in purification of water.

62 **(b)**

The materials and poison such as aluminium ions, mercurial salts and DDT that either do not degrade or degrade only extremely slowly in the natural environment are called **non-biodegradable pollutants.**

63 **(b)**

Mercury was responsible for the Minamata epidemic that caused several deaths in Japan. This tragedy had occurred due to consumption of heavily mercury contaminated fish (27 to 102 ppm) by the villagers.

64 **(b)**

The increase in the concentration of a non-biodegradable pollutant through successive trophic levels is called **biologicalmagnification**. **Seagull** is the top consumer in the food chain therefore, highest concentration of DDT will be deposited in it. **Phytoplanktons** are producers in the water bodies therefore, they have least concentration of DDT.

65 **(d)**

E.coli resides in the large intestine of human. Therefore, if these are present in water supply, it can be guessed that water supply has been contaminated by sewage.

66 **(d)**

Bad ozone is formed in troposphere. It is harmful to plants and animals. Good ozone is formed in stratosphere and absorbs harmful UV radiation from the sun

68 **(d)**

The thickness of the ozone in a column of air form the ground to the top of the atmosphere is measured in terms of Dobson Units(DU).

69 **(c)**

Montreal protocol refers to the substances such as CFCs, (chlorofluorocarbons), methane that deplete the ozone layer.

70 **(d)**

Green house effect is the warming up of earth due to accumulation of green house gases. Green house gases mainly include carbon dioxide(CO_2), methane (CH_4),chlorofluorocarbons(CFCs), etc.

71 **(a)**

Radiations from nuclear wastes cause mutations at a very high rate. At high doses, nuclear radiations are lethal. At low doses, radiations cause disorders and cancer

72 **(b)**

Pollutant is any substance, chemical or factor, which has a potential to harmfully affect the human being, plants and other animals and therefore, the homeostasis of environment.

73 **(d)**

Increase in the level of greenhouse gases in the atmosphere causes the rise in global mean temperature called global warming. *Strategies for reducing global warming are*

(i) Reducing deforestation

(ii) Plantation

(iii) Reduction of emission of greenhouse gases into the atmosphere

(iv) Cutting down the use of fossil fuels

74 **(a)**

Euro II norms were stipulated to control sulphur content at 350 ppm in diesel and 150 ppm in petrol and aromatic hydrocarbons are to be contained at 42%

75 **(b)**

In 1987, twenty seven industrialized countries signed the **Montreal protocol** for reduction and release of CFCs(chlorofluorocarbons) depleting ozone layer, into the atmosphere. It was followed by increasingly stringent amendments in London in 1990 and in Copenhagen in 1992.

76 **(d)**

A scrubber can remove gases like sulphur dioxide. In wet scrubber, a fine spray of water or alkaline fluid like lime is allowed to fall over exhaust emissions. Water dissolves gases. The particles also become heavy and fall down. Lime reacts with sulphur dioxide to produce a precipitate of calcium sulphate or calcium sulphide is used to remove soluble gases and particles

77 **(c)**

CO_2 is opaque to infra-red rays, which allow entry of radiations in atmosphere but prevents

return of heat to space from earth.

78 **(a)**

Population growth possesses serious threat to the forest. The forest are the basis needs of everyday life as they provide us food, shelter and raw material for other essentialities but these forests are deforested for fulfilling the increasing demands of overpopulation like clearing of forests for agriculture, industries, urban area, etc.

79 **(b)**

Smog secondary pollutants are formed by reactions amongst the primary pollutants. They are often more harmful than primary pollutants

80 **(c)**

According to **Holmes** et al, (1933), USA is responsible for the largest portion of man made contributions to the green house effect (21%), followed by Russia (14%), European countries (14%), India (4%) and the rest of the world (36%)

81 **(c)**

Stratosphere.

Bad ozone is formed in troposphere. It is harmful to plants and animals. Good ozone is formed in stratosphere and absorbs harmful UV radiation from the sun

82 **(b)**

CFC_s, CH_4, N_2O deplete ozone layers in atmosphere.

83 **(d)**

Platinum-palladium and rhodium.

Catalytic converters are fitted into automobiles for reducing emission of poisonous gases like NO_2 and CO. They have expensive metals like platinum-palladium and rhodium as catalysts

84 **(a)**

El Nino effect is closely associated with global warming. Rise in temperature leads to deleterious changes in the environment and results in odd climatic changes ($e.g.$,El Nino effect)

85 **(b)**

The environmental Protection Agency (EPA) has set the Maximum Contamination Lavel (MCL) of nitrate for the safety of drinking water. Nitrate levels at or above this level have been known to cause a potentially fatal blood disorder in infants under six months of age called methaemoglobinemia or blue-baby syndrome, in which there is a reduction in the oxygen carrying capacity of blood.

87 **(b)**

Deforestation is the removal of a forest or stand of trees where the land is thereafter converted to a non-forest use. Examples of deforestation include conversion of forest land to farms, ranches or urban use

88 **(b)**

Noise is the most dangerous pollutant of the environment. The unit of sound level is decibel. In a residential areas, during day time 55 dB of sound (45 dB at night) is permissible through noise pollution control law.

90 **(a)**

In 1987, under Air Prevention and control of pollution Act, noise was recognised as an air pollutant

91 **(c)**

'Green house effect' refers to selective energy absorption by green house gases(e.g., carbon dioxide, methane , nitrogen oxide, chlorofluorocarbons and water vapour) in the atmosphere, which allows short wavelength energy to pass through but absorbs longer wavelength and reflect heat back to earth.

92 **(a)**

SO_2 emitted from Mathura refinery (located about 40 km from Taj Mahal) as well as from foundries, power houses and railway yards get mixed with the atmospheric moisture and get converted into sulphuric acid, which settle down on the exterior of Taj Mahal. It reacts with marble ($CaCO_3$) leading to corrosion and discolouration of the monument.

93 **(a)**

An international treaty, Montreal Protocol, was signed at Montreal, Canada, in 1987 to curb the emission of ozone depleting substance. More protocols have been laid down in controlling emission of CFCs

94 **(c)**

Greenhouse gases are those gases, which are transparent to solar radiation but retain and partially reflect back long wave heat radiations

CFFs, CO_2, CH_4, NO_2, are greenhouse gases. The phenomenon of keeping the earth warm due to presence of these gases in the atmosphere is called greenhouse effect

95 **(b)**

The temperature of the earth has increased by 0.6°C in last three decades, which will lead to changes in precipitation patterns. Rise in temperature leads to deleterious changes in environment resulting in odd climatic changes called **El Nino effect**. The rise in temperature will lead to the increased melting of polar ice caps which will cause the rise in sea level and many coastal areas will be submerged

96 **(c)**

Due to addition of domestic wastes (sewage, phosphates, nitrates, etc) water body become rich in nutrients. With the addition of nutrients, there is stimulated luxuriant growth of algae in water leads to algal blooms. The algal blooms complete with other aquatic plants for light and photosynthesis. Thus, oxygen level is depleted. Moreover, these blooms also release some toxic chemicals, which kill fish and other animals.

97 **(d)**

Acid rain problem can be attributed mainly to atmospheric pollutants such as oxides of sulphur and nitrogen. The oxides of sulphur are released from the smoke stacks of coal fired power plants, smelters and other industries. The oxides of nitrogen came from combustion of fuels in automobiles as well as in power plants.

98 **(a)**

Eutrophication is increased in amount of nutrients in water due to detergents, pesticides, etc, and it leads to organic loading, depletion of O_2, etc.

99 **(d)**

Catalytic converters are fitted into automobiles for reducing emission of poisonous gases like NO_2 and CO. Catalytic converters have costly metals like platinum, palladium and rhodium as catalysts. Exhaust gases first pass through catalytic converter

Hydrocarbons which have been left unburnt are oxidised to produce carbon dioxide and water. Carbon monoxide is also oxidised to form carbon dioxide. However, nitrogen oxide splits up to form nitrogen gas. Auto mobiles fitted with catalytic converter should not use leaded petrol because lead inactivates the catalyst of the converter

100 **(b)**

80 dB.

Noise is defined as undesired high level of sound. It is a physical form of pollution that affects the receiver directly. Noise or pollutant sound has a value of 80 dB and above