MULTIPLE CHOICE QUESTIONS

1. Non-biodegradable pollutants are created by:
a. nature
b. excessive use of resources
c. humans
d. natural disasters
Solution:
Option (c) is the answer.

2. According to the Central Pollution Control Board, the diameter of particles that are responsible for causing great harm to human health is:
a. 2.5-micrometre
b. 5.0-micrometer
c. 10.0-micrometer
d. 7.5 micrometre
Solution:
Option (a) is the answer.

3. The material generally used for soundproofing of rooms like a recording studio and auditorium is:
a. cotton
b. coir
c. wood
d. Styrofoam
Solution:
Option (d) is the answer.

4. Compressed Natural Gas (CNG) is:
a. propane
b. methane
c. ethane
d. butane
Solution:
Option (b) is the answer.

5. World's most problematic aquatic weed is:
a. Azolla
b. Wolffia
c. Eichhornia
d. Trapa
Solution:
Option (c) is the answer.

6. Which of the following exhibits biomagnification?
a. SO_2

b. Mercury
c. DDT
d. Both b & c
Solution:
Option (d) is the answer.

7. The expanded form of DDT is:
a. dichloro diphenyl trichloroethane
b. dichloro diethyl trichloroethane
c. dichloro dipyridyl trichloroethane
d. dichloro diphenyl tetrachloroacetate
Solution:
Option (a) is the answer.

8. Which of the following material takes the longest time for biodegradation?
a. Cotton
b. Paper
c. Bone
d. Jute
Solution:
Option (c) is the answer.

9. Choose the incorrect statement.
a. The Montreal protocol is associated with the control of emission of ozone-depleting substances
b. Methane and carbon dioxide are greenhouse gases
c. Dobson units are used to measure the oxygen content of air
d. Use of incinerators is crucial to disposal of hospital wastes
Solution:
Option (c) is the answer.

10. Among the following which one causes maximum indoor chemical pollution?
a. burning coal
b. burning cooking gas
c. burning mosquito coil
d. room spray
Solution:
Option (a) is the answer.

11. The green scum seen in the freshwater bodies is:
a. blue-green algae
b. red algae
c. green algae
d. both (a) and (c)
Solution:

Option (d) is the answer.

12. The loudness of a sound that a person can withstand without discomfort is about
a. 150 dB.
b. 215 dB.
c. 30 dB.
d. 80 dB
Solution:
Option (d) is the answer.

13. The major source of noise pollution worldwide is due to:
a. office equipment
b. transport system
c. sugar, textile and paper industries
d. oil refineries and thermal power plants.
Solution:
Option (b) is the answer.

14. Match the following and choose the correct option

Column I	Column II
A. Environment Protection Act	i. 1974
B. Air Prevention & Control of Pollution Act	ii. 1987
C. Water Act	iii. 1986
D. Amendment of Air Act to include noise as an air pollutant	iv. 1981

The correct matches is;
a. A-iii, B-iv, C-i, D-ii b. A-i, B-iii, C-ii, D-iv
c. A-iv, B-i, C-ii, D-iii d. A-iii, B-iv, C-ii, D-i
Solution:
Option (a) is the answer.

15. Catalytic converters are fitted into automobiles to reduce the emission of harmful gases. Catalytic converters change unburnt hydrocarbons into:
a. carbon dioxide and water
b. carbon monoxide
c. methane
d. carbon dioxide and methane
Solution:
Option (a) is the answer.

16. Why is it necessary to remove sulphur from petroleum products?
a. To reduce the emission of sulphur dioxide in exhaust fumes
b. To increase the efficiency of automobiles engines
c. To use sulphur removed from petroleum for commercial purposes
d. To increase the life span of engine silencers

Solution:
Option (a) is the answer.

17. Which one of the following impurities is easiest to remove from wastewater?
a. Bacteria
b. Colloids
c. Dissolved solids
d. Suspended solids
Solution:
Option (d) is the answer.

18. Which one of the following diseases is not caused due to contamination of water?
a. Hepatitis-B
b. Jaundice
c. Cholera
d. Typhoid
Solution:
Option (a) is the answer.

19. Nuisance growth of aquatic plants and bloom-forming algae in natural waters are generally due to high concentrations of:
a. carbon
b. sulphur
c. calcium
d. phosphorus
Solution:
Option (d) is the answer.

20. Algal blooms impart a distinct colour to water due to:
a. their pigments
b. excretion of coloured substances
c. formation of coloured chemicals in water facilitated by physiological degradation of algae.
d. absorption of light by an algal cell wall.
Solution:
Option (a) is the answer.

21. Match the items in column I and column II and choose the correct option:

Column I	Column II
A. UV	i. Biomagnification
B. Biodegradable Organic matter	ii. Eutrophication
C. DDT	iii. Snow blindness
D. Phosphates	iv. BOD

The correct match is:

a. A-ii, B-i, C-iv, D-iii b. A-iii, B-ii, C-iv, D-i
c. A-iii, B-iv, C-i, D-ii d. A-iii, B-i, C-iv, D-ii
Solution:
Option (c) is the answer.

22. In the textbook, you came across "Three Mile Island and Chernobyl disasters associated with accidental leakage of radioactive wastes." In India we had Bhopal gas tragedy. It is associated with which of the following?
a. CO_2
b. Methyl Isocyanate
c. CFC
d. Methyl Cyanate
Solution:
Option (b) is the answer.

VERY SHORT ANSWER TYPE QUESTIONS

1. Use of lead-free petrol or diesel is recommended to reduce the pollutants emitted by automobiles. What role does leadership play?
Solution:
If leaded petrol is used in such vehicles then the lead in the petrol inactivates the catalysts and causes the emission of unburnt hydrocarbons into the atmosphere which will result in air pollution.

2. In which year was the Air (Prevention and Control of Pollution) Act amended to include noise as air pollution
Solution:
In India, the Air (Prevention and Control of Pollution) Act came into force in 1981. But in the year 1987, it was amended to include Noise as an air pollutant.

3. Name the city in our country where the entire public road transport runs on CNG.
Solution:
By the end of the year 2002 in Delhi, the entire public transport runs on CNG.

4. It is a common practice to undertake desilting of the overhead water tanks. What is the possible source of silt that gets deposited in the water tanks?
Solution:
The water supply drawn to the overhead water tanks is mainly drawn from the sources like river, deep bore well, etc. and they carry sands along. These sand particles are the source of the silt that gets deposited in the water tanks.

5. What is cultural eutrophication?
Solution:
Pollutants from human's activities like effluents from the industries and homes can radically accelerate the ageing process. This process is known as Cultural Eutrophication or Accelerated Eutrophication.

6. List any two adverse effects of particulate matter on human health.
Solution:
Breathing and respiratory issues and Irritation are two adverse effects of particulate matter on human health.

7. What is the raw material for polyblend?
Solution:
The raw material for polyblend is Polythene. Polyblends are the natural man-made fibres which are made by the mixture of two or more polymers.

8. Blends of polyblend and bitumen, when used, help to increase road life by a factor of three. What is the reason?
Solution:
Blends of polyblend and bitumen, when used to lay roads, enhanced the bitumen's water-repellant properties, and hence helped to increase road life by a factor of three.

9. Mention any two examples of plants used as windbreakers in the agricultural fields.
Solution:
Examples of plants used as windbreakers in the agricultural fields are Jamun, Imli, Neem, Babul, etc.

10. Name an industry which can cause both air and thermal pollution and as well as eutrophication.
Solution:
The fertilizer industry can cause both air and thermal pollution and as well as eutrophication

11. What is an algal bloom?
Solution:
The excessive growth of free-floating algae caused by nutrient enrichment of water bodies through various means is called an algal bloom.

12. What do you understand by biomagnification?
Solution:
The increase of concentration of toxic substances at successive trophic levels in the food chain is known as Biomagnification.

13. What are the three major kinds of impurities in domestic wastewater?
Solution:
(i) Dissolved material, like nutrients (nitrates, phosphates, sodium, calcium)
(ii) Colloidal material, like faeces, bacteria, cloth, etc.
(iii) Suspended material, like sand, silt, etc.

14. What is reforestation?
Solution:
Reforestation is the restoration of a forest that once existed but was removed at some point in past.

15. What is the best solution for the treatment of electronic wastes?

Solution:
The best solution for the treatment of electronic waste is recycling. They can recycle 95-98% by weight.

SHORT ANSWER TYPE QUESTIONS

1. Is it true that carpets and curtains/drapes placed on the floor or wall surfaces can reduce noise level? Explain briefly?
Solution:
Yes, carpets and curtain placed on the floor can indeed reduce noise because these items absorb sound waves. They act as a sound absorber.

2. What is hybrid vehicle technology? Explain its advantages with a suitable example?
Solution:
Hybrid Vehicle technology is the technology which allows the vehicle to run on dual-mode like petrol and CNG.
Advantages:
1. As CNG is a green fuel, the fossil fuels are conserved and also pollution is reduced.
2. CNG is cheaper which is cost-effective and can't be adulterated.

3. Is it true that if the dissolved oxygen level drops to zero, the water will become septic? Give an example which could lower the dissolved oxygen content of an aquatic body.
Solution:
When the dissolved oxygen level drops to zero, many aquatic animals die because they don't get any dissolved oxygen to breathe. This results in the water becoming septic.

4. Name anyone greenhouse gas and its possible source of production on a large scale. What are the harmful effects of it?
Solution:
Carbon dioxide is one of the most common greenhouse gases. Harmful effects of the increase of greenhouse gases are increased temperature of the earth, melting of glaciers, breathing issues in human beings, etc.

5. It is a common practice to plant trees and shrubs near the boundary walls of buildings. What purpose do they serve?
Solution:
The trees and shrubs near the boundary walls of buildings are not only meant for the decoration purpose but also as barriers against noise pollution, air purifiers and dust catchers. This is important for the health of the people.

6. Why has the National Forest Commission of India recommended a relatively larger forest cover for hills than for plains?
Solution:
The National Forest Commission of India recommended a relatively larger forest cover for hills than for plains to reduce the chances of landslides and soil erosion.

7. How can slash and burn agriculture become environment friendly?

Solution:
Slash and burn agriculture, also called Jhum cultivation, has also contributed to the deforestation. In this type of cultivation, the farmers cut down the trees of the forest and then burn the plants remains. The ash so obtained serves as a fertilizer. This land is then used for farming. The practice is carried out on small widely scattered plots to protect the forests and becomes friendly with the environment.

8. What is the main idea behind "Joint Forest Management Concept" introduced by the Government of India?
Solution:
The main idea behind "Joint Forest Management Concept" introduced by the Government of India is to motivate local communities to identify themselves and protect the forests and also generates employment.

9. What do you understand by snow-blindness?
Solution:
Due to excessive absorption of UV rays, the cornea inflames which causes Snow Blindness which is painful and vision will be lost temporarily.

10. How has DDT caused a decline in the bird population?
Solution:
The bird population declines when the DDT concentration in their body increases and causes a disturbance in the calcium metabolism which causes thinning of eggshells and their premature breaking.

11. Observe the figure A and B are given below and answer the following questions

i. The power generation by the above two methods is non-polluting True/False.
ii. List any two applications of solar energy
iii. What is a photovoltaic cell?
Solution:
i) Both of the methods are indeed non-polluting & environment friendly
ii) The solar energy is converted into electrical energy with the help of solar cells and The solar energy converted into heat for heating water.

iii) A photovoltaic cell is a device which converts solar energy directly into electrical energy by the photovoltaic effect

LONG ANSWER TYPE QUESTIONS

1. Write a short note on electronic waste. List the various sources of e-wastes and the problems associated with its disposal.
Solution:
Electronic waste is those which are the residue of the electronic applications after the usage like phone batteries, computers, televisions etc. These wasters are buried in the lands which cause soil pollution as well as air pollution. Over half of the e-waste generated in the developed countries like USA, UK, etc. is exported to the developing countries like India, Pakistan and China. The developed countries have proper and specifically built facilities for recycling of e-waste. In some countries, it has been recycled also. The E-waste contains many toxic metals which is harmful and causes diseases.

2. What is organic farming? Discuss the benefits of organic farming as a viable practice in the context of developing nations like India.
Solution:
Organic farming is the use of bio-fertilisers in agriculture. Bio-fertilizers are the organisms which improve the fertility of the soil by enriching it with nutrients. Bio fertilizers are bacteria, fungi and cyanobacteria. The benefits of organic farming are they maintain soil fertility for a long time. Organic farming is eco-friendly and costs optimised. The harmful pests are controlled without harming the environment. Water bodies are safe as the fertilizer is bio not chemical.

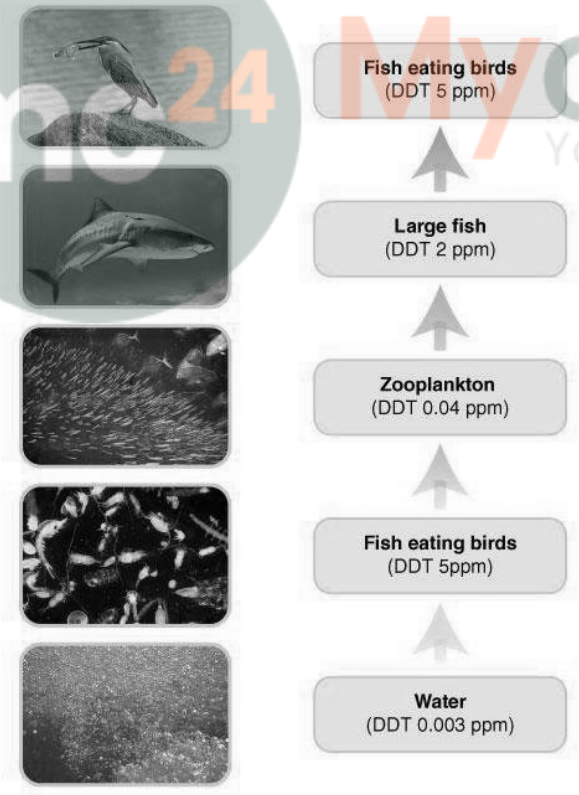
3. Waterlogging and soil salinity are some of the problems that have come in the wake of the Green Revolution. Discuss their causes and adverse effects on the environment.
Solution:
Waterlogging and soil salinity are some of the problems that have come in the wake of the Green Revolution.
Causes:
1. Irrigation without a proper drainage system.
2. The continuous presence of water draws salt to the surface of the soil, which gets deposited as a thin crust on the land surface or starts collecting at the roots of the plants.
Adverse effects:
1. Increased salt content causes a reduction in the growth of crops which causes extreme damage to agriculture.
2. Root cells get shrunk due to saline water.

4. What are multipurpose trees? Give the botanical and local names of any two multipurpose trees known to you and list their uses.
Solution:
Multipurpose trees are those trees which solve multiple purposes like providing fruits, shade, timber, medicine, etc. The coconut tree (Cocos nucifera) has multiple uses. Its fruit is edible, its oil is used in cooking, the coconut husk is used as fibre to make many products (like doormats, brushes, mattresses), coconut oil is also effective in reducing scars.

5. What are the basic characteristics of a modem landfill site? List any three and also mention the reasons for their use.
Solution:
The basic characteristics of a modern landfill site include-
(i) Methods to contain leachates such as lining clay or plastic liners.
(ii) Compaction and covering of the waste to prevent it from being blown by the wind.
(iii) Installation of a landfill gas extraction system to extract the gas for use in the generation of power.

6. How does an electrostatic precipitator work?
Solution:
An electrostatic precipitator is a device which is used to extract the suspended dust particles from the gas.
It uses a high voltage charge to collect particles on the charged plates. It has electrode wires which are maintained at high voltages. This produces corona which releases an electron. A net negative charge will be attained by the dust particles and those are collected by the collecting plates. The velocity of air between plates is kept low to allow the dust particles to fall and settle down. Electrostatic precipitator can remove over 99% particulate matter present in the exhaust from a thermal power plant.

7. Observe figure and answer the following questions.



i. What ecological term is used to describe the DDT accumulation at different trophic levels?
ii. List anyone effect of DDT accumulation on birds
iii. Will DDT accumulation lead to eutrophication?

iv. Does it affect the BOD?
v. Name the disease caused by the accumulation of any heavy metal.
Solution:
i) The ecological term used to describe DDT accumulation at different trophic levels is Biomagnification.
ii) The high concentration of DDT in birds disturbs their metabolism resulting in thinning of their eggshells and their premature breaking.
iii) Yes, DDT accumulation leads to eutrophication which is a natural ageing of a water body due to excess nutrition.
iv) DDT accumulation leads to eutrophication (increased life in a water body) which ultimately results in increased Biological Oxygen Demand.
v) Minamata Disease due to Mercury, Black foot due to Arsenic and Itai-Itai due to Cadmium.