

8. POLLUTION

Q 1) Following are some statements about pollution. Which type of pollution do those express?

a. Fog seems to be appearing in Delhi during day hours.

Ans. Air pollution

b. Many times, vomiting and dysentery occurs after eating ‘pani puri’.

Ans. Water pollution

c. Problem of sneezing occurs sometimes during visit to garden.

Ans. Air pollution

d. Crop does not grow up in some areas.

Ans. Soil pollution

e. People living in the busy squares face the problems like short breathing and other respiratory problems.

Ans. Air pollution

Q 2) Read the passage and identify the sentences expressing types of pollution.

Nilesh is a student of std. VIII and lives in urban area. It takes about an hour to go to the school by bus. He faces the heavy traffic of two wheelers, four wheelers, rickshaws, buses while going to school. He is facing the problem of asthma since last few

days. Doctors recommended him to stay away from urban area. Since then, his mother sent him to the village of his maternal uncle. Nilesh saw the heaps of garbage at many places in village. Foul smell of human and animal wastes was present at many places. Blackish water with foul smell was flowing in a stream. He developed some abdominal disease within few days.

Ans-

- i) He faces the heavy traffic of two wheelers, four wheelers, rickshaws, buses while going to school-Air and noise pollution
- ii) He is facing the problem of asthma since last few days-Air pollution
- iii) Nilesh saw the heaps of garbage at many places in village-Soil pollution
- iv) He developed some abdominal disease within few days-Water pollution

Q 3) Match the pairs from 'A' and 'B' columns and explain the effect of pollution on human health.

Column 'A'	Column 'B'
1. Water containing cobalt	a. Mental retardedness
2. Methane gas	b. Paralysis
3. Water containing lead	c. Inflammation of lungs
4. Sulphur dioxide	d. Skin cancer
5. Nitrogen dioxide	e. Irritation of eyes

Ans

Column 'A'	Column 'B'
1. Water containing cobalt	a. Paralysis
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3. Water containing lead	c. Mental retardedness
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Q 4) True or false.

a. Water does not get polluted by washing the cloths in running water of river.

Ans. False. (If soiled clothes are washed in running water, it will cause water pollution as the dirt and the waste materials will get released in water. Thus, washing clothes in running water will cause water pollution.)

b. More the use of electric appliances more will be the pollution.

Ans. True. (The generation of electricity in India is mostly by burning coal, which leads lots of air pollution released by the power generation plants. So if more appliances are used then more electricity will be consumed. However, the power generation done through solar energy does not cause pollution.)

Q 5) Answer the following.

a. What is pollution?

Ans. Contamination of natural environment that will be harmful to ecosystems is called as pollution.

b. What are pollutants?

Ans. Factors affecting natural functions of ecosystem and causing harmful effects on abiotic and biotic factors like plants, animals and humans are called pollutants.

c. What is acid rain?

Ans.1) Oxides of Sulphur and nitrogen are released into atmosphere through fossil fuels such as coal, wood, petroleum, etc. **2)** These oxides mix with rain water and form acids like sulphuric acid, nitric acid, nitrous acid, etc. **3)** These acids mix with rain drops, mist and snowflakes, change their composition and fall in the form of acid rain.

4) Effects of acid rain are as follows:

- i)** Increase in the acidity of soil leads to damage to the trees, agriculture and crop lands.
- ii)** Increase in the acidity of Water bodies so; water becomes unsuitable for fish and wildlife.
- iii)** Buildings, statues, sculptures, bridges, monuments and fences are corroded due to acid rain that damages our national assets.

d. What is greenhouse effect?

Ans.1) The global warming and climate change occur due to Greenhouse effect. 2) The solar energy is received by earth from sun in the form of heat. The earth surface absorbs this heat and reflects back to the atmosphere as infrared radiation. Some of this heat energy goes directly into space. 3) There is an envelope of CO_2 , CH_4 and water vapours in the atmosphere due to pollution, some of these radiations are absorbed by these gases. This radiation is sent back to the earth surface in the form of heat energy. 4) This causes warming of the earth which is called greenhouse effect. It later results in global warming. 5) The gases (CO_2 , CH_4 , N_2O and CCl_2F_2) contributing to greenhouse effect are called greenhouse gases. 6) More burning of fossil fuels and activities by humans leads to greenhouse effect.

e. Which are visible pollutants known to you?

Ans. The polluting substances that are not seen easily with the naked eyes are called as visible pollutants. eg. Metal refuse, plastic articles, solid wastes, , plastic bags, the suspended things in the water, particulate emissions (smog) is example of visible pollutant.

f. Which are invisible pollutants?

Ans. The pollutants which get completely dissolved in water or mixed in the air cannot be seen are called invisible pollutants. E.g.

the insecticides spread on the crops. Nitrogen oxides, Sulphur oxides, carbon monoxide are some of the invisible pollutants. Aerosols, many hazardous gases in the air, toxic compounds that are totally soluble in water, etc.

Q 6) Answer the following.

a. Give two examples of each of water, soil and air pollution from your residential area.

Ans. i) Examples of water pollution:

- a) Improper disposal of sewage water.
- b) Detergents from washing our cars.
- c) Improper disposal of paints.

ii) Examples of soil pollution:

- a) Drainage of contaminated surface water into the soil.
- b) Discharge of sewage.
- c) Improper disposal of electronic waste.

iii) Examples of air pollution:

- a) Vehicle exhaust release toxic gases like CO_2 etc.
- b) Burning waste in the open area.

b. How does the pollution occur due to vehicles? Give the names of vehicles causing least pollution.

Ans. 1) Vehicles burn fuel that is petrol or diesel to power their engines. More than 50% of the air pollution is caused by vehicular traffic. 2) The automobile exhausts contain particulate matter, unburnt hydrocarbons, CO, nitrogen oxides and

carcinogenic hydrocarbons. 3) Fossil fuels like petrol, diesel, natural gas, gasoline, etc. which are burnt to run the automobiles lead to the emission of the emit of CO_2 and other gases. This process leads to emission of harmful gases in the environment. 4) Therefore, vehicle which is non-polluting is bicycle. The four-wheelers which are battery operated are also manufactured recently. Bicycle, CNG vehicles, electric vehicles are some of the vehicles that cause the least pollution.

c. What are natural reasons for water pollution?

Ans. The natural causes of the water pollution:

1) The weeds such as Eichhornia overgrow when organic pollutants are added to the water. If algae is grown in water it is unsuitable for consumption. The aquatic plants release oxygen during day and at night they require oxygen which depletes the dissolved oxygen level. The natural characters of water get changed. 2) The decomposing matter when added to the water makes it polluted and stinking. (3) Due to deposition of sludge or eroded soil, the rivers change their path and divert from original flow. The currents also get changed. Deposition of sludge causes the water pollution. 4) Natural form of water pollution is due to erosion of soil, usually caused by rainfall. Due to soil erosion, surrounding the water bodies, the microbes, bacteria, protozoans and the worms and larvae of nematodes enter the water causing severe biological pollution. Many inorganic pollutants are also added to the water. The fungi and bacteria present in the water

make it non-potable. Such water spreads the water-borne diseases.

d. Suggest four preventive measures for air pollution.

Ans. The following methods are adopted to control air pollution from the industries:

1) Pollution controlling machinery should be used for smoke emerging from factories. e. g. Arresters filters. The source discharge is diluted by tall chimneys. 2) The source correction methods like changing the raw material, equipment modification, process modification, etc. 3) Effective pollution controlling equipment like dust collectors, electrostatic precipitators, wet scrubbers, etc. should be used. 4) There should be ban and control over CFC production, atomic tests and chemical weapons on the international level.

e. Explain relation between greenhouse effect and global warming.

Ans. There is rise in the global temperature because of greenhouse effect, the heat on the earth remains trapped due to envelope of greenhouse gases. Similar to CO_2 nitrous oxide, methane and CFC also trap the heat. These are called greenhouse gases. Thus the greenhouse effect is directly related to the global warming.

Effects of this relation between greenhouse effect and global warming are as follows:

1) The polar ice caps and the glaciers at both the poles are melting due to increased temperature. 2) The oceans water is rising due to this melted ice. The sea level rise is causing coastal land submergence. The islands at various regions are threatened of drowning. 3) Many species of living organisms are already extinct due to global warming. The rest are also threatened. 4) Wild animals are showing weird migration. Polar bear is endangered. 5) The increased temperature of the oceanic water is causing many changes in the tides and currents. This results into increased occurrence of cyclones, hurricanes and cloud bursting. The natural disasters are rising in last decade. 6) The agricultural production is decreasing. The regions with less rainfall are facing draughts.

f. Construct two slogans each on air, water and soil pollution.

Ans. Air pollution:

- 1) Be a part of the solution and not part of pollution.
- 2) Show your care, clean your air.

Water pollution:

- 1) Water, water everywhere, not a drop to drink.
The pollution is making all the water stink.
- 2) Save the fish and the little turtle. Don't throw plastic or it will encircle.

Soil pollution:

- 1) Don't be mean, keep environment clean.
- 2) Let's keep land clean, together only we can win.

Q 7) Classify the following pollutants into natural and manmade categories.

Sewage, dust, pollen grains, chemical fertilizers, vehicular smoke, algae, pesticides, waste of animals and birds.

Ans.

Natural Pollutants	Man-made pollutants
Sewage, dust, pollengrains, algae, waste of animals and birds	Chemical fertilizers, Vehicular smoke,Pesticides.

