

Lakhmir Singh Solutions For Class 8 Science Chapter 18

Pollution Of Air And Water

1. Name the gas present in the atmosphere which is mainly responsible for causing global warming.

Solution:

Carbon dioxide is the gas which is mainly responsible for causing global warming.

2. Name two gases present in polluted air which can cause acid rain.

Solution:

Sulphur dioxide and Nitrogen dioxide are the gases present in polluted air which causes acid rain.

3. Name all the major pollutants of air.

Solution:

The gases like carbon dioxide, carbon monoxide, Sulphur dioxide, nitrogen dioxide and chlorofluorocarbons are the major pollutants of air.

4. Which air pollutant combines with the hemoglobin of our blood?

Solution:

Carbon monoxide combines with the hemoglobin of our blood. It reduces the oxygen-carrying capacity of the blood.

5. Name the various air pollutants discharged by motor vehicle exhausts.

Solution:

The various air pollutants discharged by motor vehicle exhausts are carbon dioxide, carbon monoxide, nitrogen oxides and smoke.

6. Which gas in the upper atmosphere prevents ultraviolet radiations of the sun from reaching the earth?

Solution:

The ozone layer in the upper atmosphere prevents ultraviolet radiations of the sun from reaching the earth.

7. Name any two diseases caused by drinking polluted water containing sewage.

Solution:

Drinking of polluted water containing sewage causes diseases like cholera, typhoid and jaundice.

8. Name any four toxic metals whose compounds are present in industrial wastes.

Solution:

Arsenic, lead, mercury and fluorides are the toxic metals whose compounds are present in industrial wastes.

9. Name any two types of chemicals used in agriculture which cause water pollution.

Solution:

Pesticides and weedicides are the chemicals used in agriculture which cause water pollution.

10. The use of excessive fertilizers in the fields lead to the deficiency of an important substance in the water of a nearby lake. Name the substance.

Solution:

The use of excessive fertilizers in the fields leads to the deficiency of oxygen in the water of a nearby lake. This may kill aquatic organisms.

Short Answer Type Questions

11. What is the Ganga Action Plan? When and why was it launched?

Solution:

The plan to save the river Ganga was launched in 1985 is called the Ganga Action Plan. It was aimed to reduce the pollution levels in the river.

12. Name any four pollutants which cause water pollution. State any three ways of controlling water pollution.

Solution:

Chemical waste from industries, sewage, silt, agricultural chemicals and garbage is thrown into water causes water pollution.

1. Water pollution can be controlled by using limited pesticides and weedicides.
2. Water should go through sewage treatment before discharging to water bodies.
3. Water should be recycled after the process for example in domestic usages like washing vegetables

13. How do industries cause water pollution?

Solution:

Industries such as oil refineries, paper factories, textile and sugar mills and chemical factories discharge harmful chemicals into rivers and streams. Toxic metals like arsenic and leads will harm both plants and animals.

14. How can you help reduce air pollution at the individual level?

Solution:

1. By planting trees help to control deforestation
2. Industrial waste should be treated before discharging to water bodies
3. Automobiles should use unleaded petrol
4. Avoid plastic bags so that burning of plastics can be avoided and air pollution can be controlled.

15. Explain the difference between pure air and polluted air.

Solution:

Pure air is a mixture of several gases that are invisible and odourless. It consists about 78% nitrogen, 21% is oxygen and less than 1% of Carbon dioxide and other gases like argon, methane and ozone and a varying amount of water vapours whereas polluted air contains dust, smoke, and other harmful chemicals.

16. What is 'greenhouse effect'? State its importance for us.

Solution:

The trapping of heat from the earth's atmosphere is called the greenhouse effect. Carbon dioxide is one of the gases responsible for this effect. Some other gases like methane, nitrous oxide and water vapours also contribute towards this process.

17. Name two greenhouse gases? Which one of them produces the maximum greenhouse effect?

Solution:

Carbon dioxide and methane are greenhouse gases. Carbon dioxide produces the maximum greenhouse effect.

18. What depletes the ozone layer in the atmosphere? What are the harmful effects of the depletion of the ozone layer on us?

Solution:

Chlorofluorocarbons used in refrigerators, air conditioners and aerosol sprays are responsible to deplete the ozone layer in the atmosphere. Increase of ultraviolet radiations at ground level which gives rise to an increased risk of skin cancer.

19. Name one source and one harmful effect of each of the following air pollutants:

(a) Sulphur dioxide

(b) Nitrogen oxides

(c) Carbon monoxide

(d) Chlorofluorocarbons (CFCs)

Solution:

(a) Combustion of fossil fuel in the power plants and other industries causes respiratory problems and lung damages.

(b) By motor vehicles. Nitrogen dioxide causes breathing problems like asthma

(c) Incomplete burning of fuels like petrol and diesel, carbon monoxide reduces the oxygen capacity of the blood

(d) Used in refrigerators, air conditioners and aerosol sprays which deplete the ozone layer in the atmosphere.

20. Explain why, even clear, transparent and odourless water may not always be safe for drinking.

Solution:

Even the clear, transparent and odourless water may not always be safe for drinking because it may contain pollutants. Toxic chemicals like lead and arsenide will be present in the water which causes death.

21. Explain why hot water released by power plants and industries is considered a pollutant.

Solution:

Hot water released by power plants and industries is considered a pollutant because it raises the temperature of the water body and causes harm to the plants and living organisms.

22. Why does the increased level of nutrients (or fertilizers) in the lake water affect the survival of aquatic organisms (like fish)?

Solution:

Some ponds or lakes have a lot of green algae growing in them. This is caused due to the excessive quantity of chemicals which are washed from the fields. This decreases the oxygen content in the ponds and kills the living organisms in the ponds.

23. Explain how the use of pesticides in agriculture causes water pollution.

Solution:

The use of pesticides in agriculture is responsible for causing water pollution. It is also caused due to the excessive use of fertilizers in the fields. It acts as a food for algae and the growth will lead to reduce the oxygen content of water and kill many aquatic organisms.

24. (a) Describe the threat to the Taj Mahal monument due to air pollution.

(b) State any two ways of controlling air pollution;

Solution:

(a) The industries which are located in and around Agra such as Mathura Oil refinery, rubber processing, automobile and chemical industries have been responsible for the emission of air pollutants. Sulphur and nitrogen oxide are the main pollutants which react with air to form acids. Decolouration happened to its white marble due to these harmful chemicals.

(b) Air pollution can be controlled by avoiding the usage of plastics from burning or ban plastic bags. Automobiles should use unleaded petrol.

25. (a) What is potable water? Name any two methods to make water safe for drinking.

(b) State two ways in which you conserve water at home by preventing its wastage.

Solution:

(a) The water which is safe for drinking without any risk of health problems is called potable water.

1. By using filters

2. Boiling of water which kills germs in the water.

(b) 1. Water can be recycled or reused after washing vegetables for watering plants.

2. Check if any leakages are there and try to minimise the unnecessary usages of water in toilets and bathrooms.

Long Answer Type Questions

26. (a) What is meant by water pollution? What are the different ways in which water gets polluted?

(b) State the harmful effects of water pollution.

Solution:

The harmful substances like sewage, toxic materials, silt etc., when gets mixed with water, causes water pollution. The pollutants which cause water pollution are the chemical waste from industries, sewage, silt, agricultural chemicals and garbage thrown into the water.

Water can be polluted by

1. Water can be polluted by the flow of industrial wastes
 2. By human wastes
 3. It can be polluted from power plants which release hot water.
 4. The over usages of pesticides and fertilizers
- (b)1. Toxic metals like arsenic and lead discharged by industries are harmful to plants and animals
2. The hot water released by industries raises the temperatures which affect badly to plants and animals.
 3. Uses of fertilizers cause the deficiency of oxygen in the water.

27. (a) What is air? Write the names of various constituents of air.

(b) What is air pollution? What are the main sources of air pollution?

Solution:

(a) Pure air is a mixture of several gases that are invisible and odourless. It consists of about 78% nitrogen, 21% is oxygen and less than 1% of Carbon dioxide and other gases like argon, methane and ozone and a varying amount of water vapours.

(b) Air pollution is the contamination of fresh air by unwanted substances like dust smoke and other chemicals emitted from industries and factories.

Main sources are:

1. Smoke and dust arising from the forest fire
2. From automobile exhausts, factories and burning of woods
3. The pollutants like Sulphur dioxide and Nitrogen dioxide causes acid rain
4. Carbon monoxide from fuels like petrol and diesel.

28. What is smog? How is smog formed? What are its harmful effects?

Solution:

A thick fog- like layer in the atmosphere which is made up of smoke is called smog. The smoke released is released into the atmosphere due to various activities like automobile exhausts, power plants, and factories and burning of firewood and dung cakes etc., the smoke may contain the oxides of nitrogen which combines with other air pollutants and fog to form smog.

Smog causes respiratory problems like cough and asthma and also accidents due to the invisible road due to smog.

29. What is acid rain? How is acid rain caused? What are the harmful effects of acid rain?

Solution:

The pollutants like Sulphur dioxide and Nitrogen dioxide combine in the atmosphere and form their acids which are called acid rain. These pollutants are emitted from industries or factories.

1. Acid rain is harmful to aquatic organisms and other animals.
2. It increases the acidity of the water
3. It damages buildings and statues

30. What is global warming? What are the likely harmful effects of global warming?

Solution:

The trapping of radiation by the earth's atmosphere is known as the Greenhouse effect. Life would not have been possible without this process. Carbon dioxide and methane are greenhouse gases. Carbon dioxide produces the maximum greenhouse effect. Due to an increase in the amount of carbon dioxide in the atmosphere, the average temperature of the earth's atmosphere is gradually increasing. This is called global warming.

1. It causes sea level to rise dramatically
2. It could result in wide-ranging effects on rainfall patterns, agriculture, forests, plants and animals.
3. It has caused an increase in the melting of polar ice caps which has resulted in the rise of sea level more quickly over the last century.
4. If the temperature rises by more than 2 degrees it will be very dangerous.

Multiple Choice Questions (MCQ's)

31. Which of the following is not a greenhouse gas?

- (a) Carbon dioxide
- (b) Nitrous oxide
- (c) Methane
- (d) Nitrogen

Solution:

Option (d) is the answer.

32. Which of the following air pollutant reduces the oxygen-carrying capacity of blood to a large extent?

- (a) Carbon dioxide
- (b) Nitrogen monoxide
- (c) Carbon monoxide
- (d) Sulphur dioxide

Solution:

Option (c) is the answer.

33. The constituent of polluted air which contributes to producing acid rain is:

- (a) Nitrogen
- (b) Sulphur dioxide
- (c) Oxygen

(d) Argon

Solution:

Option (c) is the answer.

34. The Kyoto protocol is associated with one of the following. This one is:

(a) Reduction in the use of chlorofluorocarbons

(b) Reduction in the emission of greenhouse gases

(c) Reduction in the cutting of forest trees

(d) Reduction in the pollution of freshwater sources

Solution;

Option (b) is the answer.

35. Which of the following will be reduced in the air in a city forest when a lot of dust and fly ash is emitted by a coal-based factory in the vicinity?

(a) Nitrogen

(b) Carbon dioxide

(c) Oxygen

(d) Water vapour

Solution:

Option (c) is the answer.

36. Which of the following disease cannot be caused by the drinking of river water contaminated with untreated sewage?

(a) Cholera

(b) Typhoid

(c) Tuberculosis

(d) Diarrhoea

Solution:

Option (c) is the answer.

37. Which of the following statement about ozone is correct?

(a) It is essential for breathing

(b) It absorbs ultraviolet rays

(c) Its proportion of air is about 3%

(d) It is mainly responsible for global warming

Solution:

Option (b) is the answer.

38. Drinking water can be made safe by adding one:

- (a) Aspirin tablet
- (b) Iodine tablet
- (c) Chlorine tablet
- (d) Chlorophyll tablets

Solution:

Option (c) is the answer.

39. The excessive use of one of the following in agriculture can cause the death of fish in a pond by oxygen starvation. This one is:

- (a) Fertilizers
- (b) Manures
- (c) Pesticides
- (d) Herbicides

Solution:

Option (a) is the answer.

40. Which of the following is usually not a water pollutant?

- (a) Sewage
- (b) Fertiliser
- (c) Fly ash
- (d) Pesticide

Solution:

Option (c) is the answer.

41. Which of the following are used in electric water filters to kill all the harmful microorganisms present in tap water and make it safe for drinking?

- (a) Infrared radiation
- (b) Gamma radiation
- (c) Visible radiation
- (d) Ultraviolet radiation

Solution:

Option (d) is the answer.

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42. Which of the following is not an air pollutant?

- (a) Sulphur dioxide
- (b) Sewage
- (c) CFC's

(d) SPM

Solution:

Option (b) is the answer.

43. Which of the following air pollutant is capable of preventing photosynthesis in plants?

(a) CFC's

(b) Nitrogen oxides

(c) Dust

(d) Carbon monoxide

Solution:

Option (c) is the answer.

44. One of the following does not contribute to producing acid rain. This one is

(a) Nitrogen dioxide

(b) Nitrogen monoxide

(c) Carbon monoxide

(d) Sulphur dioxide

Solution:

Option (c) is the answer.

45. Which of the following will reach the earth in greater amounts if the number of chlorofluorocarbons released into the air increases?

(a) Infrared rays

(b) X-rays

(c) Gamma rays

(d) Ultraviolet rays

Solution:

Option (d) is the answer.