



SCIENCE - Q & Answers

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Air & Water Pollution Question & Answers

1. Name the agents that pollute air and water
Pollutants
2. Name the main air polluting gases
Sulphur dioxide, carbon monoxide and nitrogen oxides.
3. Which radiations are absorbed by CO₂?
Infrared radiations
4. Define eutrophication
Enrichment of water bodies with nutrients like nitrates and phosphates is known as eutrophication.
5. Name one major source of water pollution
Untreated sewage
6. What is cause for starting of melting of Gangotri glacier?
Global warming
7. Which health problem arises by air pollution?
Respiratory problems like asthma, breathlessness, bronchitis, etc.
8. What is global warming?
Increasing temperature in atmosphere.
9. Which gas is responsible for depletion of ozone layer?
Chlorofluorocarbons (CFC's).
10. What does SPM stand for?
Solid particulate matter.
11. What is the role of activated charcoal in purification of water?
It removes finest particles suspended in water.
12. Name a greenhouse gas
Carbon dioxide, methane, water vapour (any one)
13. What is the formula of ozone?
O₃
14. What is the function of ozone layer?
Ozone layer protects us from ultraviolet rays of the sun.
15. Name diseases spread through drinking of contaminated water
Diarrhoea, typhoid, etc.
16. When was the Ganga action plan launched?
In 1985

17. What is smog? Answer:

The combination of smoke and fog is basically known as smog.

18. What do you mean by acid rain?

Due to fossil fuel and industrial combustions that mostly emits nitrogen oxides (NO) and sulphur dioxide (SO₂) into the atmosphere.

Water vapour present in atmosphere reacts with these gases to form nitric acid and sulphuric acid. Normal rain water is slightly acidic with a pH range of 5.3-6.0, because carbon dioxide and water present in the air react together to form carbonic acid, which is a weak acid. When the pH level of rain water falls below this range due to combining with these acids in atmosphere, it becomes acid rain.

19. What are the effects of Acid rain?

- Effect on aquatic environment: Acid rain lowers pH level below 5, most fish eggs cannot hatch. Lowering in pH can also kill adult fish.
- Effect on forests: It makes trees vulnerable to disease, extreme weather, and insects by destroying their leaves, damaging the bark and arresting their growth.
- Effect on soil: Acid rain highly impacts soil microbes and biological activity as well as soil chemical compositions. Thus affecting crop production.
- Effect on architecture and buildings: Acid rain on buildings, especially those constructed with limestone, react with the minerals and corrode them away. This leaves the building weak and susceptible to decay. Irreplaceable damage can be caused to the old heritage buildings.
- Effect on public health: When in atmosphere, sulphur dioxide and nitrogen oxide gases, degrades visibility and can cause accidents, leading to injuries and deaths. Intensified levels of acid depositions in dry form in the air can cause lung and heart problems such as bronchitis and asthma.
- Other effects: Acid rain leads to weathering of buildings, corrosion of metals, and peeling of paints on surfaces. Acid rain also corrodes metals like steel, bronze, copper and iron.

20. What is eutrophication? How does it affect aquatic organisms?

Enrichment of an ecosystem with nutrients, typically compounds containing nitrogen, phosphorous or both, is known as eutrophication. Eutrophication in lakes, ponds or rivers encourages the growth of algae and other aquatic plants. These algae grow rapidly in the water system and forms algal bloom. They compete for sunlight, oxygen and space. These badly affect the aquatic life and deteriorate water quality. This is also responsible for the large scale death of aquatic plants and animals

21. How can you prevent water pollution?

- Be careful about what you throw down your sink or toilet. Don't throw paints, oils or other forms of litter down the drain.
- Use environment-friendly household products, such as washing powder, household cleaning agents and toiletries.
- Take great care not to overuse pesticides and fertilisers. This will prevent runoffs of the material into nearby water sources.
- By having more plants in your garden you are preventing fertiliser, pesticides and contaminated water from running off into nearby water sources

22. Write a short note on water pollution.

Water pollution is the contamination of water bodies (e.g., lakes, rivers, oceans, aquifers and groundwater). This form of environmental degradation occurs when pollutants are directly or indirectly discharged into water bodies without adequate treatment to remove harmful compounds. Water is available both on surface and under the ground. The major pollutants of surface water are toxic and poisonous wastes from households, industries, nuclear wastes, oil spills, agricultural waste, accumulation of heavy metals, chemicals from chemical factories, microorganisms from human faeces, etc.

Groundwater is mainly contaminated by leaching of harmful chemicals into the soil. Seepage of sewer near groundwater aquifer contaminates with disease causing microorganisms. Accumulation of heavy metals in soil may also lead to groundwater pollution. Water pollution affects the entire biosphere – plants and organisms living in these bodies of water. In almost all cases the effect is damaging not only to individual species and population, but also to the natural biological communities

23. How can you prevent air pollution?

- Conserve energy-remember to turn off lights, computers, and electric appliances when not in use.
- Use energy efficient light bulbs and appliances.
- Limit driving by carpooling, using public transportation, biking and walking.
- Combine errands for fewer trips.
- Keep your automobile well-tuned and maintained. Follow the manufacturer's instructions on routine maintenance, such as changing the oil and filters, and checking tyre pressure and wheel alignment.
- Choose environment-friendly appliances.
- Petrol can be substituted with CNG.
- Make fertilisers of biodegradable wastes instead of burning them.
- Plant more and more trees

24. Name various techniques used for purification of water

Water which looks clean may still have disease-carrying microorganisms and dissolved impurities. So, it is essential to purify water before drinking. Municipal bodies use various physical and chemical processes before supplying water into households.

- Boiling: It is a very common practice use for obtaining safe drinking water. Boiling kills the germs present in the water.
- Filtration: This is a physical method of removing impurities and in some cases germs also. A popular household filter is a candle type filter.
- Chlorination is a commonly used chemical method for purifying water. It is done by adding chlorine tablets or bleaching powder to the water.
- Now-a-days filter with reverse osmosis (RO) which causes desalination of water along with activated charcoal (to filter impurities) and ultraviolet lamp (to kill microorganisms) are also used for purification of water

25. What do you mean by water pollution?

When water gets contaminated by unwanted substances which have a harmful effect on both living and non-living things is referred to as water pollution.

26. What is greenhouse effect?

The reflected sun rays are trapped by the earth's atmosphere. The trapped radiation warms the earth. This process by which the temperature of the earth's atmosphere rises is called greenhouse effect.

27. What are the main causes of air pollution?

- The main causes of air pollution are
- Poisonous gases which are expelled by various industries.
- Gases emitted by vehicles.
- Smoke and dust which are arising day by day due to human activities.
- Smoke emitted by forest fire.

28. What do you mean by air pollution?

When air is contaminated by unwanted substances which have a harmful effect on both living and non living things then it is referred as air pollution.

29. What are the factors that are responsible for water pollution?

Water gets polluted when unwanted and harmful substances are added to the water. Discharging of untreated sewage into the river, leaching of chemicals from agricultural practices and industries, oil spills, etc., causes water pollution.

30. What are the harmful effects of global warming?

The harmful effects of global warming are

- It will increase the earth's temperature.

- Increase in earth's temperature may lead to rise in sea level due to melting of glaciers.
- Rise in sea level will flood the coastal and low-lying areas.
- Global warming may lead to extreme weather other than cold or heat extremes.
- It may also affect many flora and fauna which are sensitive to temperature and their extinction

31. Which factors decide quality of potable water?

Potable water is clear, tasteless, odourless, have no contaminants and right pH. It has no harmful minerals or their level is too low to affect human health.

32. What's global warming?

Carbon dioxide is increasing day by day and it is a warm gas, which increases the temperature of the earth's atmosphere. It is called global warming

33. Name any two sources which cause air pollution due to suspended particulate matter.

Combustion of fuels and industrial activities.

34. Name three alternative sources of energy which do not cause any pollution.

Wind energy, solar energy and hydropower.

35. The quality of air at various locations is monitored regularly by government and other agencies. In what way can you use these data?

These data can be used to generate awareness about air pollution among people and to take immediate action to control it causes.

36. What is the best way to dispose off dry leaves? Why?

Dry leaves can be converted into compost which is good for maintaining soil nutrients. Secondly, it does not cause pollution.

37. We should plant trees and nurture the ones already present in the neighbourhood. Why?

Plants absorb carbon dioxide gas and releases oxygen. Thus, they play important role in purifying the earth's atmosphere. By absorbing CO₂ they also reduces the chance of global warming. Trees provide habitat to many birds and animals. They maintain water cycle in the nature and also prevent soil erosion

38. Why is it advised that industries should switch over to cleaner fuels such as CNG and LPG in the Taj Mahal Zone in Agra?

With mushrooming industries and oil refineries suspended particulate matter is increasing in the air. These suspended particulate matter, dust and dirt get settle on the marble giving the Taj Mahal a yellowish appearance. This is reducing the aesthetic value of one of the seven wonders of the world

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