



Class: VIII	Department: SCIENCE 2021 – 22	Date:12.10.2021
Worksheet No:9 WITH ANSWERS.	Topic: Pollution of air and water	Note:A4 File format
Name of the student:	Class & Section:	Roll no.

I. VERY SHORT ANSWERS (1M):

1. Define pollution. (Hint-The contamination of natural resources, like air and water by the addition of harmful substances is called pollution.)
2. Mention two major sources of air pollution.(Hint-Automobiles and Industries)
3. Give the full form of CFC and SPM. (Hint: chlorofluorocarbon, suspended particulate matter)
4. Any two gaseous pollutants.(Hint-Carbon dioxide,Sulphur dioxide)
5. The best method to kill germs in water domestically(Hint-Boiling)
6. Any two diseases caused by polluted water.(hint-Typhoid, Cholera)
7. Name one major source of water pollution.(Hint-Untreated sewage)
8. What is the function of ozone layer?(Hint- Ozone layer protects us from ultraviolet rays of the sun.)
9. Which phenomenon is responsible for global warming?(Hint- Greenhouse effect)
10. What do you understand by the term 'Potable water'?(Hint-Water fit for consumption by humans and other animals is called potable water. It is also called as drinking water.)

II. ASSERTION AND REASON

For question numbers 11 to 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below-

- i) Both A and R are true and R is the correct explanation of the assertion.
 - ii) Both A and R are true but R is not the correct explanation of the assertion.
 - iii) A is true but R is false.
 - iv) A is false but R is true.
11. Assertion(A): Two natural sources of air pollution are forest fires and volcanic eruptions.
Reason(R): The harmful and unwanted substances which contaminate the air are called air pollutants.

Ans . (ii)

12. Assertion(A): The average temperature of the earth's atmosphere is gradually increasing.

Reason(R): Carbon dioxide is continuously released because of human activities and this carbon dioxide traps sun's heat and does not allow it to escape into space.

Ans. (i)

13. Assertion(A): Water pollution does not damage the health of humans and animals.

Reason(R): Microbial pollutants from sewage often result in water borne disease like typhoid, cholera and jaundice.

Ans. (iv)

III. PASSAGE BASED QUESTIONS:

There are many success stories in our fight against air pollution. For example, a few years ago, Delhi was one of the most polluted cities and even now is the polluted city in the world. It was being choked by fumes released from automobiles running on diesel and petrol. Air pollutants released can cause respiratory problems and even lead to lung damage. A decision was taken to switch to fuels like CNG and unleaded petrol. These measures have resulted in cleaner air for the city. There is a need to switch over to alternative fuels instead of the fossil fuels for our energy requirements. These could be solar energy, hydropower and wind energy. Small contributions on our part can make a huge difference in the state of the environment. We can plant trees and nurture the ones already present in the neighbourhood. *Van Mahotsav*- The Festival to celebrate the forests in India

Celebrating the importance of tree, Van Mahotsav was initiated in the year 1950 to celebrate the importance of growing and saving our forests and create awareness about the ill effects of deforestation. It is an annual tree planting festival in the month of July. During this festival thousands of trees are planted all over India.

i) The table lists few fuels used by automobiles.

- | |
|--|
| <ol style="list-style-type: none">1. Petrol2. Diesel3. Compressed natural gas4. Unleaded petrol |
|--|

Which set of fuels would help to reduce air pollution?

- a) 1 and 2
- b) 2 and 3
- c) 3 and 4
- d) 4 and 2

ii) A student learns that polluted air causes various problems to human beings. He makes a table to list some problems caused by air pollution.

- | |
|---|
| <ol style="list-style-type: none">1. Reduced visibility.2. Respiratory problems.3. Intestinal diseases.4. Reduced hearing. |
|---|

Which of the problems are correctly listed by the student?

- a) 1 and 3
- b) 2 and 1
- c) 3 and 4
- d) 4 and 1

iii) Town X has polluted air. To assess the quality of air in town X, the researchers studied the gases present in the atmosphere. The presence of which gas would justify that the town X has polluted air?

- a) Argon
- b) Oxygen
- c) Nitrogen
- d) Carbon monoxide

iv) The major cause of air pollution include:

- a) Burning of coal and petroleum
- b) Afforestation
- c) Deforestation
- d) Recycling of paper

v) Van Mahotsav is:

- a) Planting trees in January
- b) Cutting trees in January
- c) Cutting trees in July
- d) Planting trees in July

IV.CASE STUDY BASED QUESTIONS:

Ganga is one of the most famous rivers of India. Millions of people depend on it for their daily needs and livelihood. However, recently a study by the World Wide Fund for Nature (WWF) found that Ganga is one of the ten most endangered rivers in the world. The pollution levels have been rising for many years. We have reached this stage because the towns and cities, through which the river flows, throw large quantities of garbage, untreated sewage, dead bodies, and many other harmful things, directly into the river. In fact the river is “dead” at many places where the pollution levels are so high that aquatic life cannot survive. An ambitious plan to save the river, called the **Ganga Action Plan** was launched in 1985. However, the increasing population and industrialisation have already damaged this mighty river beyond repair. Let us take a specific example to understand the situation. The Ganga at

Kanpur in Uttar Pradesh (U.P.), has one of the most polluted stretches of the river. People can be seen bathing, washing clothes and defecating in the river. They also throw garbage, flowers, idols of gods and goddesses and non-biodegradable polythene bags into the river. At Kanpur the amount of water is comparatively small and the flow of the river is very slow. In addition, Kanpur has more than 5000 industries. These include fertiliser, detergent, leather and paint industries. These industrial units discharge toxic chemical wastes into the river.

- i) River Y flows through an area. Which of these can make river Y polluted?
- If rainwater would fall in river Y.
 - If water from canal merges into river Y.
 - If discharge from industries drain into river Y.**
 - If surplus discharge from nearby catchment areas drains into river Y.

ii) The table lists few steps to prevent water pollution in major rivers.

- | |
|---|
| <ol style="list-style-type: none">Educating the people and spreading awareness.Implementing strict laws against activities that contaminate river water.Restricting villagers to use river banks only for bathing and washing and not for defaecating.Replacing the use of jute bags with polybags in areas located close to rivers. |
|---|

Which set of steps would prove to be most useful in controlling river pollution?

- 1 and 2**
- 2 and 3
- 3 and 4
- 1 and 4

IV a) SHORT ANSWER TYPE QUESTIONS (2 M):

- What do you understand by the terms air pollution and water pollution.
(**Air pollution-The contamination of air by impurities which may have a harmful impact on the living organisms and the non-living components.**
Water pollution-It is the contamination of waterbodies by discharge of undesirable substances that are toxic and poisonous.)
- How does incomplete combustion of fuels affect the health of human beings? (**Hint-Carbon monoxide is produced by incomplete combustion of fuels.It combines with haemoglobin of blood to form carboxyhemoglobin and reduces oxygen carrying capacity.**)
- What is SMOG? Mention the effects of smog on human health.(**Hint-Smog is formed when smoke combines with fog. Smog reduces visibility and causes a haze similar to fog, but very different in composition. It decreases the capacity of the lungs, causes shortness of breath, pain when inhaling deeply, wheezing and coughing .It can cause eye and nose irritation.**)
- List any four measures to control air pollution.(**Hint-Switching to cleaner fuels like CNG (Compressed Natural Gas) and LPG (Liquefied Petroleum Gas) can lead to decreased air pollution,Enforcing smoke emission test and certification to all motor vehicles,Growing more trees to absorb carbon dioxide. Using alternate sources of energy like solar energy, wind energy etc.**)

5. What depletes the Ozone layer in the atmosphere? What are the harmful effects of the depletion of ozone layer on us?(Hint-CFCs released from refrigerators, air conditioners, and aerosol sprays deteriorates the ozone layer. Exposure to UV radiation causes skin cancer, eye damage etc.)

IV.b) SHORT ANSWER TYPE QUESTIONS (3 M):

1. Explain the circumstances leading to acid rain. How does acid rain affect us? (Hint-Acid rain occurs when sulphur dioxide and nitrogen dioxide produced from burning fossil fuels combine with water vapour in the atmosphere to form sulphuric acid and nitric acid .These acids drop down with rain forming the acid rain. It causes damage to water, forest,soil resources and human health.)
2. Explain Green House Effect.(Hint-The phenomenon whereby the earth's atmosphere traps solar radiations because of the presence of gases like carbon dioxide, water vapor, methane and CFCs is called greenhouse effect.)
3. Describe Global warming in your own words.(Hint-The rise in the temperature on the surface of the earth is called global warming. It might be due to phenomena like green house effect. Carbon dioxide and methane are the gases mainly responsible for global warming.)
4. How does the use of excessive fertilisers and pesticides affect water bodies? (Hint-Excessive use of fertilisers and pesticides can pollute the nearby water bodies.Rivers polluted by fertilisers allow the growth of algae that use dissolved oxygen in the water for their sustenance. This leads to oxygen deficiency in water, which can cause the death of other aquatic animals. This enrichment of nutrients and depletion of oxygen is called eutrophication.)
5. Mention the factors that decides the quality of potable water.
 - It should be colorless and odourless.
 - It should be free from any suspended impurities, germs and pathogens.
 - Should contain essential amounts of dissolved mineral salts of sodium, calcium and magnesium essential for physiological processes.
 - Should contain dissolved gases.
6. How can you prevent water pollution?
(Hint-Do not throw litter into rivers, lakes or oceans,Excessive use of chemical fertilisers and pesticides should be avoided and wherever possible should be replaced by biofertilisers and biopesticides,Many sewage treatment plants should be built to prevent sewage mixing with water.)

V. LONG ANSWER TYPE QUESTIONS (5M):

1. a) We should plant trees and nurture the ones already present in the neighbourhood. Why?

(We should plant more trees and also nurture the existing trees in our neighbourhood because trees reduce air pollution by absorbing excess carbon dioxide from the air. Thus, planting more trees will mitigate global warming. All of us should participate in programmes such as Van Mahotsav in which lakhs of trees are planted in the month of July every year.)

b) Why is it advised that industries should switch over to cleaner fuels such as CNG and LPG in the Taj Mahal zone in Agra?

(Pollutants in air are discolouring white marble of Taj Mahal. The Mathura Oil Refinery near Agra as well as various industries in and around Agra are emitting gaseous pollutants such as sulphur dioxide and nitrogen dioxide into the air which cause acid rain. Acid rain reacts with the carbonates present in marble (calcium carbonate) and limestone of a monument and corrodes it slowly (dissolves it slowly)

c) Why do traffic policemen wear masks with charcoal lining?

(**Hint: Traffic policemen** are continuously exposed to smoke coming out from the vehicles. The smoke and the suspended particles in it if inhaled can cause breathing and lung problems. So **traffic policemen wear masks with charcoal lining** as **charcoal** is activated carbon which absorbs the pollutants in the smoke.)

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