

Land Pollution Chemistry Questions with Solutions

Q1. Which of the following is/are responsible for land pollution?

- (a) Effluent and sewage
- (b) Solid waste
- (c) Fertilizers and Pesticides
- (d) None of the above
- (e) All of the above

Answer: (e) Effluent, sewage, solid waste, fertilizers, and pesticides are responsible for land pollution.

Q2. Which of the following can cause land pollution?

- (a) Deforestation
- (b) Over-grazing of pastures
- (c) Ploughing of steeply sloping land
- (d) None of the above
- (e) All of the above

Answer: (e) Deforestation, over-grazing of pastures, plowing of steeply sloping land causes land pollution.

Q3. Which of the following are plant-based pesticides?

- (a) Paration and aldrin
- (b) Neem oil and nicotine
- (c) Aldrin and neem oil
- (d) Paration and neem oil

Answer: (b) Neem oil and nicotine are plant-based pesticides.

Q4. How is PAH related to land pollution?

- (a) It is a carcinogenic organic compound
- (b) It contains harmful metal causing land pollution
- (c) It is an inorganic waste from industries
- (d) It is a fertilizer waste

Answer: (a) PAH is related to land pollution as it is a carcinogenic organic compound.

Q5. Which type of land pollution makes land unfit for cultivation due to high salt content?

- (a) Desertification
- (b) Carbonisation
- (c) Salinization
- (d) None of the above

Answer: Salinization is a type of land pollution that makes land unfit for cultivation due to high salt content.

Q6. What is land pollution?

Answer: Land pollution refers to land contamination with eccentric concentrations of toxic substances in the land. It decreases the fertility of the land and also causes water pollution.

Q7. What are the causes of land pollution?

Answer: Many factors disrupt the land quality and cause land pollution. A few of the primary land pollution causes are enlisted below.

1. Industries: Industrial activities are the most significant contributor to land pollution. Improper disposal of waste can affect the land quality and pollutes it.
2. Agricultural Activities: Pesticides and fertilizers were used to control pests that disrupt the land quality. But, excessive or improper use of pesticides and fertilizers can contaminate the land and causes land pollution.
3. Waste Disposal: Poor management or inefficient waste disposal contaminates the land and causes land pollution.

Q8. Name some pollutants that cause land pollution.

Answer: Pollutants that cause land pollution are:

1. Heavy metals like arsenic, mercury, lead, etc.
2. Polycyclic aromatic hydrocarbons (PAHs).
3. Industrial wastes like chlorinated solvents, dioxin, dispersants, plasticizers, and polychlorinated biphenyls (PCBs).
4. Pesticides, herbicides, insecticides, fungicides, and fertilizers.

Q9. What are the sources of PAH?

Answer: PAHs are sourced from

1. Coke processing
2. Vehicle emissions
3. Cigarette smoke
4. Extraction of shale oil.

Q10. Name some heavy metals that are responsible for land pollution?

Answer: Heavy metals like arsenic, mercury, lead, antimony, zinc, nickel, cadmium, selenium, beryllium, thallium, chromium, and copper causes land pollution.

Q11. How can we manage contaminated land?

Answer: We can manage contaminated land by

1. Increasing the land pH to 6.5 or higher.

2. Draining wetlands.
3. By applying phosphate.
4. Carefully selection of plants on metal-contaminated land.

Q12. What are the effects of fertilizers on land pollution?

Answer: Fertilizers were used to supply plant nutrients essential to the growth of plants. But, excessive or improper use of fertilizers can contaminate the land and causes land pollution. A few harmful effects of fertilizers are enlisted below.

1. Excess nitrate content in land can contaminate groundwater and cause groundwater pollution. In groundwater, nitrogen levels above ten mg/L (10 ppm) can cause the blue baby syndrome.
2. Phosphorus-containing fertilizers contain cadmium which contaminates the land and causes land pollution.
3. Phosphate rocks contain high fluoride levels, which contaminate the land and cause land pollution.
4. Excess use of fertilizers in fields causes micronutrient imbalance.
5. **Eutrophication:** Excess fertilizers in fields lead to wash off of the nutrient-loaded water into nearby lakes, causing over-nourishment and water pollution.

Q13. Why do we use fertilizers?

Answer: Fertilizer is any natural or synthetic chemical applied to lands or plant tissues to supply plant nutrients essential to the growth of plants. Fertilizers enhance the growth of plants. This goal is met in two ways, the traditional one being additives that provide nutrients. The second way is fertilizers to strengthen the effectiveness of the land by modifying its water retention and aeration. Careful fertilization technologies are essential because excess nutrients can be as detrimental. Fertilizer burn can occur when too much fertilizer is applied, resulting in drying out the leaves and damage or even death of the plants.

Q14. Match the following sources of land contamination.

Column I	Column II
Dredged spoils	Using of explosives to blow up mines
Demolition and construction	Improper waste disposal system and improper sanitation system causes waste accumulation
Mining and Quarrying	Non-biodegradable rubbles or debris which are settled and increase land toxicity
Household	Improper dredging method at fertile land causes land infertility

Answer:

Column I	Column II
Dredged spoils	Improper dredging method at fertile land causes land infertility
Demolition and construction	Non-biodegradable rubbles or debris which are settled and increase land toxicity
Mining and Quarrying	Using of explosives to blow up mines
Household	Improper waste disposal system and improper sanitation system causes waste accumulation

Q15. What are the effects of pesticides on land pollution?

Answer: Pesticides are substances meant to attract, seduce, and destroy any pest. They are a class of biocide. The most common use of pesticides is in plant protection. We use pesticides to control pests that disrupt the land quality. But, excessive or improper use of pesticides and fertilizers can contaminate the land and causes land pollution. A few harmful effects of pesticides are enlisted below.

1. It alters microbial processes and affects organisms present in the land.
2. Pesticides can also accumulate in animals that eat contaminated pests and land organisms.
3. Some pests that survive the pesticide generate highly resistant generations that are immune to pesticides. These pests are called super pests.
4. Most pesticides are non-biodegradable and accumulate in the food chain. It is known as bio-accumulation or bio-magnification. These pesticides in a bio-magnified form are harmful to human beings.
5. Pesticides indirectly suppress the immune system and act as a carcinogen

Practise Questions on Land Pollution

Q1. Name some pesticides that contribute to land pollution?

Answer: Pesticides like triazines, carbamates, amides, phenoxy alkyl acids, aliphatic acids, organophosphates, chlorinated hydrocarbons, arsenic-containing compounds, pyrethrum, mercury-containing compounds, and copper sulfate contributes to the land pollution.

Q2. What are the effects of land pollution on the ecosystem?

Answer: Land pollution contaminates the land and can affect the ecosystem harshly.

1. It contributes to air and water pollution.
2. It may cause acid rain.

3. It affects land quality and its texture.
4. It affects crop yield.

Q3. What is PAH?

Answer: PAH is the abbreviation of polycyclic aromatic hydrocarbons. It contains carbon, hydrogen, and more than one aromatic ring in its chemical structures.

Examples: Naphthalene, anthracene, and phenalene.

Q4. What are the effects of land pollution on human health?

Answer: The contaminants found in polluted land can enter human bodies through the nose, mouth, or skin. Exposure to such lands can cause various short-term health problems such as headaches, coughing, chest pain, nausea, and skin/eye irritation. Prolonged exposure to contaminated land can lead to the depression of the central nervous system and damage to vital organs. Long-term exposure to polluted lands has also been linked to cancer.

Q5. How can we control land pollution?

Answer: Several technologies have been developed to control land pollution. Some essential procedures are listed below.

1. Excavation and ensuing transportation of polluted soils to distant, uninhabited sites can cure land pollution.
2. Extraction of pollutants through thermal remediation
3. Bioremediation or phytoremediation.
4. Mycoremediation.