Carbon dioxide Chemistry Questions with Solutions

Q1. Which of the following serves as the main source of carbon for plants?
(a) Atmospheric carbon dioxide
(b) Fossil fuel
(c) Carbon monoxide
(d) None of the above
Answer: (a) Atmospheric carbon dioxide serves as the main source of carbon for plants.

Q2. Which of the following factor contributes to the carbon cycle?
(a) Fossil fuel combustion
(b) Photosynthesis
(c) Respiration
(d) All of the above
Answer: (d) Fossil fuel combustion, photosynthesis and respiration contribute to the carbon cycle.

Q3. What is the name of solid carbon dioxide?
(a) Compressed Ice
(b) Dry Ice
(c) Solid Ice
(d) None of the above
Answer: (b) Solid carbon dioxide is also known as dry ice.

Q4. 100 mL of blood carries _____ mL CO_2.
(a) 3.7 mL
(b) 0.37 mL
(c) 13.7 mL
(d) None of the above
Answer: (a) 100 mL of blood carries 3.7 mL CO_2.

Q5. What is the test for carbon dioxide, and what result do you observe?
(a) Litmus Paper- Blue
(b) Moist pH Paper- Orange
(c) Lighted Splint - Squeaky Pop
(d) None of the above
Answer: (d) We can test carbon dioxide by passing it in lime water. If it turns milky, then it confirms the presence of carbon dioxide gas.
$CaO + CO_2 \rightarrow CaCO_3\downarrow$ (White precipitate).

Q6. Which of the following environmental issues is strongly linked to higher carbon dioxide levels in the atmosphere?
(a) Ozone layer hole
(b) Pollution
(c) Global warming
(d) None of the above
Answer: (c) Global warming is strongly linked to higher carbon dioxide levels in the atmosphere.

Q7. Give one method for laboratory preparation and one for the industrial preparation of carbon dioxide.
Answer: We can prepare carbon dioxide in the laboratory by reacting calcium carbonate with dilute hydrochloric acid.
$CaCO_3 + 2\ HCl \rightarrow CaCl_2 + CO_2 + H_2O$
We can prepare carbon dioxide in the industry by heating the limestone.
$CaCO_3 + heat \rightarrow CaO + CO_2$

Q8. Draw the lewis dot structure of the carbon dioxide.
Answer: Lewis dot structure of the carbon dioxide:

Q9. Is carbon dioxide an acid or a base?
Answer: Carbon dioxide is considered to be an acid. It reacts with water to form weak carbonic acid.
$CO_2\ (g) + H_2O\ (l) \rightleftharpoons H_2CO_3\ (aq)$

Q10. Distinguish between carbon dioxide and carbon monoxide.
Answer:

S. No.	Carbon dioxide	Carbon monoxide
1.	It is a gas containing two oxygen atoms and one carbon atom, liberated by breathing, combustion of fuels etc.	It is a gas containing one oxygen atom and one carbon atom, liberated by incomplete combustion of fuels.

2.	**It is comparatively less toxic.**	**It is toxic.**
3.	**Its molar mass is 44 g/mol.**	**Its molar mass is 28.01 g/mol.**
4.	**Its molecular formula is CO_2.**	**Its molecular formula is CO.**
5.	**Its bond length is 116.3 pm.**	**Its bond length is 112.8 pm.**
6.	**It is a non-flammable gas.**	**It is a flammable gas.**
7.	**It has an impact on the respiratory system.**	**It impacts the central nervous system, lungs and blood.**

Q11. What are the three properties of carbon dioxide?
Answer: Carbon dioxide is a gas formed by combining two oxygen atoms with one carbon atom. A few properties of carbon dioxide are mentioned below.
1. It is colourless.
2. At low concentrations, it is odourless, while at high concentrations, it has a sharp, acidic smell.
3. At standard temperature, carbon dioxide density is 1.53 times higher than air.

Q12. What is the role of carbon dioxide in our body?
Answer: Carbon dioxide is the waste product of the respiratory system. However, it plays a critical role in our body. A few roles of carbon dioxide in our body are mentioned below.
1. It helps in regulating blood's pH level.
2. It is a dilator of the smooth muscles.
3. It helps in stimulating respiration.

Q13. Match the following.

Column I	Column II
Oxygen	**Carbon dioxide**
Azote	**Nitrogen**
Solvay process	**Vital life**
Gun powder	**No life**

Answer:

Column I	Column II
Oxygen	**Vital life**

Azote	No life
Solvay process	Carbon dioxide
Gun powder	Nitrogen

Q14. What happens if we inhale carbon dioxide?
Answer: At lower concentrations, inhaling carbon dioxide is not toxic. It may lead to rapid breathing, increased heart rate, fatigue, emotional upsets and clumsiness. But at higher concentrations, it can affect us harshly. It can lead to vomiting, nausea, convulsions, coma and even death.

Q15. Why is carbon dioxide harmful to the environment?
Answer: Yes, carbon dioxide is detrimental to the environment. It is a primary greenhouse gas that aids in tangling heat in our environment, resulting in increased temperature of the earth's surface leading to global warming. It is released when fossil fuels like coal or natural gas are burned.

Practise Questions on Carbon dioxide

Q1. What is aerated water?
Answer: Aerated water is a form of water in which the water is artificially impregnated with a large amount of gas like carbon dioxide.
When carbon dioxide is artificially impregnated with water, it is known as carbonated water.

Q2. Describe a test to detect the presence of carbon dioxide gas?
Answer: We can detect the presence of carbon dioxide gas by passing it into the lime water. Carbon dioxide reacts with the lime water to form a white precipitate of calcium carbonate.
$CaO + CO_2 \rightarrow CaCO_3\downarrow$ (White precipitate).

Q3. Why is carbon dioxide essential to the human body?
Answer: Carbon dioxide is essential for internal respiration in the human body. Internal respiration occurs when oxygen is transported to body tissues, and carbon dioxide is carried away from body tissue. Carbon dioxide protects the blood's pH, which is essential for survival.

Q4. What are the three primary uses of carbon?
Answer: The three primary uses of carbon are as follows:
1. Carbon is used as a fuel (in the form of coal), which is predominantly carbon.
2. Graphite is used to make pencil tips, high-temperature crucibles, dry cells, electrodes, and lubricants, which is an allotrope of carbon.

3. Diamonds are used in jewellery and industry for cutting, drilling, grinding, and polishing due to their extreme hardness, which is also an allotrope of carbon.

Q5. What are the benefits of carbon dioxide?
Answer: Carbon dioxide is formed by combining two oxygen atoms with a carbon atom. A few advantages of carbon dioxide are mentioned below.
1. Increased carbon dioxide concentrations increase photosynthesis, stimulating plant growth.
2. Carbon dioxide is a substantial greenhouse gas that aids in tangling heat in our environment. Without it, our planet would be inhospitably cold.