Answer all the questions below then check your answers

1. What type of structure does silica (SiO_2) have?

A. Simple molecular B. Giant ionic C. Giant covalent D. Metallic

2. Fill in the gap to complete the sentence below:

Soda-lime glass is made by heating silica with sodium carbonate and _____ carbonate.

3. Explain why soda-lime glass can crack when heated suddenly.

4. Which substance is added to make borosilicate glass?

A. Magnesium oxide B. Boron trioxide
C. Lead oxide D. Copper oxide

5. Describe what is meant by an amorphous structure and explain why glass is transparent.

6. Fill in the gap: In the float process, molten glass floats on a bath of molten _____.

7. Why were medieval windows blurry and uneven?

8. Silica melts at around 1650°C. Explain why such a high temperature is required.

9. Which type of glass is used for ovenware and laboratory apparatus?

A. Soda-lime glass B. Borosilicate glass

C. Lead crystal D. Tempered glass

10. Give one reason why sodium carbonate is added when making glass.

Answers

1. What type of structure does silica (SiO_2) have?

A. Simple molecular B. Giant ionic C. Giant covalent D. Metallic

Answer: C. Giant covalent

2. Soda-lime glass is made by heating silica with sodium carbonate and _____ carbonate.

Answer: Calcium carbonate

3. Explain why soda-lime glass can crack when heated suddenly.

Answer: It expands significantly when heated, causing thermal stress.

4. Multiple Choice: Which substance is added to make borosilicate glass?

A. Magnesium oxide B. Boron trioxide

C. Lead oxide D. Copper oxide

Answer: B. Boron trioxide

5. Describe what is meant by an amorphous structure and explain why glass is transparent.

Answer: Glass has a disordered atomic arrangement (amorphous). The random structure does not scatter light significantly, making it transparent.

6. In the float process, molten glass floats on a bath of molten _____.

Answer: Tin

7. Why were medieval windows blurry and uneven?

Answer: They were made using older methods that could not produce perfectly flat glass.

8. Calculation-style (conceptual): Silica melts at around 1650°C. Explain why such a high temperature is required.

Answer: Many strong covalent bonds must be broken in its giant covalent structure.

9. Which type of glass is used for ovenware and laboratory apparatus?

A. Soda-lime glass B. Borosilicate glass

C. Lead crystal D. Tempered glass

Answer: B. Borosilicate glass

10. Give one reason why sodium carbonate is added when making glass.

Answer: It lowers the melting point of silica, reducing energy costs.