CHEMISTRY

BOOKS - ICSE

CARBON AND ITS COMPOUNDS

Test Yourself 1 Fill In The Blanks

1. In free state, carbon occurs as.....and.....

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2. Allotropes have the same.....properties and different.....

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3. .....allotropes of carbon do not have a definite geometric shape.

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4. Basic unit of a diamond crystal has a.....shape.

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5. .....is soft and slippery with a basic pattern of hexagonal rings.

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6. In free state, carbon occurs as.....and.....

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7. Allotropes have the same.....properties and different.....

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8. .....allotropes of carbon do not have a definite geometric shape.

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9. Basic unit of a diamond crystal has a.....shape.

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10. .....is soft and slippery with a basic pattern of hexagonal rings.

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Test Yourself 3 Complete The Following Equations

1. $Na_2O + CO_2 \rightarrow$ .....

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2. $CO_2 + H_2O \rightarrow$ .....

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3. $CaCO_3 + \ldots\ldots\ldots \rightarrow CaCl_2 + H_2O +$

.....

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4. $Ca(OH)_2 + CO_2 \rightarrow$ ..... + ...

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5. $2C + (\text{limited})O_2 \rightarrow$ .....

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6. $Na_2O + CO_2 \rightarrow$ .....

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7. $CO_2 + H_2O \rightarrow$ .....

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8. $CaCO_2 + \ldots\ldots\ldots \rightarrow CaCl_2 + H_2O +$ .....

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9. $Ca(OH)_2 + CO_2 \rightarrow$ ..... + ...

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10. $2C + (\text{limited})O_2 \rightarrow$ .....

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Exercises A Multiple Choice Questions

1. What is the valency of carbon?

A. 2

B. 4

C. 6

D. 8

Answer: B

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2. Following is an amorphous allotrope of carbon.

A. graphite

B. charcoal

C. diamond

D. fullerene

Answer: B

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3. In the laboratory preparation of carbon dioxide, carbon dioxide is collected by:

A. downward displacement of water

B. upward displacement of water

C. downward displacement of air

D. upward displacement of air

Answer: D

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4. Carbon dioxide dissolves in water to form

A. sulphuric acid

B. hydrochloric acid

C. carbonic acid

D. carbon monoxide

Answer: C

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5. Following is used as a reducing agent in metallurgy i.e. extraction of metals in blast furnace.

A. carbon dioxide

B. carbon monoxide

C. graphite

D. soot

Answer: A

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6. What is the valency of carbon?

A. 2

B. 4

C. 6

D. 8

Answer: B

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7. Following is an amorphous allotrope of carbon.

A. graphite

B. charcoal

C. diamond

D. fullerene

Answer: B

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8. In the laboratory preparation of carbon dioxide, carbon dioxide is collected by:

A. downward displacement of water

B. upward displacement of water

C. downward displacement of air

D. upward displacement of air

Answer: D

View Text Solution

9. Carbon dioxide dissolves in water to form

A. sulphuric acid

B. hydrochloric acid

C. carbonic acid

D. carbon monoxide

Answer: C

View Text Solution

10. Following is used as a reducing agent in metallurgy i.e. extraction of metals in blast furnace.

A. carbon dioxide

B. carbon monoxide

C. graphite

D. soot

Answer: A

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Exercises B True Or False

1. Name three crystalline allotropes of carbon.

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2. Diamond is hard and a bad conductor of electricity while graphite is soft and a good conductor of electricity. Explain. State the hybridization of carbon in both substances.

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3. Nanotubes are formed by fullerenes allotrope of carbon.

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4. Carbon dioxide is lighter than air.

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5. Incomplete burning of fuels produces carbon monoxide.

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6. Coke and coal are crystalline allotropic forms of carbon.

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7. Diamond is a bad conductor of electricity and heat.

View Text Solution

8. Nanotubes are formed by fullerenes allotrope of carbon.

View Text Solution

9. Carbon dioxide is lighter than air.

View Text Solution

10. Incomplete burning of fuels produces carbon monoxide.

View Text Solution

Exercises C Fill In The Blanks

1. The existence of two or more forms of a compound is called .....

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2. ..... is a colourless, crystalline and purest form of carbon.

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3. ..... is a good conductor of heat and electricity and used to make electrodes.

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4. .....exists in the form of buckyball and nanotubes.

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5. Carbon dioxide forms a snowy white solid called ..... at -78°C.

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6. The existence of two or more forms of a compound is called .....

View Text Solution

7. ..... is a colourless, crystalline and purest form of carbon.

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8. ..... is a good conductor of heat and electricity and used to make electrodes.

View Text Solution

9. .....exists in the form of buckyball and nanotubes.

View Text Solution

10. Carbon dioxide forms a snowy white solid called ..... at -78°C.

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Exercises D Match The Following

1. What happens when methane reacts with oxygen?

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Exercises E Name The Following

1. Common variety of coal called household coal.

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2. Formation of coal from matter under the earth at high temperature and pressure in the absence of oxygen over millions of years.

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3. Substance used in the preparation of carbon dioxide along with dil. HCl

Watch Video Solution

4. Name the compound formed by haemoglobin with carbon monoxide.

Watch Video Solution

5. Substance formed by burning of wood in limited oxygen.

Watch Video Solution

6. Common variety of coal called household coal.

View Text Solution

7. Formation of coal from matter under the earth at high temperature and pressure in the absence of oxygen over millions of years.

View Text Solution

8. Substance used in the preparation of carbon dioxide along with dil. HCl

View Text Solution

9. Compound formed in the body by combining carbon monoxide with haemoglobin.

View Text Solution

10. Substance formed by burning of wood in limited oxygen.

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Exercises F Diagram Based Questions

1. What happens when methane reacts with water?

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2. Write the chemical equation for the reaction occuring between methane and chlorine.

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3. IUPAC name of butyric acid is.

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Exercises G Give Reasons For The Following

1. It is advised not to stand behind a vehicle with a running engine.

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2. Graphite is used for making electrodes.

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3. Dry ice is

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4. Why Carbon dioxide is not collected over water.?

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5. What is the role of activation charcoal in gas masks used in mines ?

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6. Government is promoting use of LPG over traditional cooking methods.

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Exercises H Short Answer Questions

1. What are allotropes?

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2. Name three crystalline allotropes of carbon.

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3. Give an important use of diamond in industries.

Watch Video Solution

4. Give two important properties of graphite.

Watch Video Solution

5. What is the structure of buckminster fullerene?

Watch Video Solution

6. What is destructive distillation of wood?

Watch Video Solution

7. Define carbonization.

Watch Video Solution

8. What is soot? How is it formed?

Watch Video Solution

9. Give two important properties of carbon dioxide.

Watch Video Solution

10. Why is carbon monoxide said to be a poisonous gas?

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Check Your Progress Answer The Following

1. Name three crystalline allotropes of carbon.

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2. Which is the purest form of carbon?

Watch Video Solution

3. Which type of bond joins the carbon atoms in a diamond?

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4. Name an allotrope of carbon that is a good conductor of electricity.

Watch Video Solution

5. How many carbon atoms can fullerenes have?

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Exercise Tick The Most Appropriate Answer

1. Graphite is used as a lubricant because it is

A. a good conductor of heat.

B. a good conductor of electricity

C. soft and slippery.

D. soluble in organic solvents.

Answer:

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2. Following is an amorphous allotrope of carbon.

A. diamond

B. graphite

C. fullerene

D. wood charcoal.

Answer:

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3. A form of carbon that is a good conductor of heat is

A. diamond

B. graphite

C. wood charcoal

D. coke

Answer:

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4. Buckyball is found in

A. dust

B. rocks

C. soot

D. none of these

Answer:

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5. Lampblack is used in making

A. shoe polish

B. black paint.

C. ink

D. all of these

Answer:

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6. Calcium carbonate on heating produces

A. Ca

B. CaO_2

C. Ca_2O

D. CO_2

Answer:

Watch Video Solution

7. Carbon monoxide reduces Fe_2O_3 to

A. Fe

B. Fe_2O

C. FeO_2

D. none of these

Answer:

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Exercise Fill In The Blanks

1. _____, _____ and ____ are the three crystalline forms of carbon.

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2. Some diamonds have different colours due to ___ in them.

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3. The diamond crystal is a regular _____ having one carbon at each of its _____ corners and one carbon lying at its ____

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4. The molecules of the first fullerene are composed of ____ carbon atoms.

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5. ____ is the purest form of amorphous carbon.

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6. _____ is used in making shoe polish and printer's ink.

Watch Video Solution

7. Gas carbon and graphite are _____ conductors of electricity.

Watch Video Solution

8. _____ is produced when metal carbonates or bicarbonates are treated with dilute acids.

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Exercise Write True Or False Correct The False Statements

1. Synthetic diamonds are used in cutting and grinding tools.

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2. Diamond is a good conductor of heat and electricity.

Watch Video Solution

3. Diamond is the purest form of carbon.

Watch Video Solution

4. Graphite is used as a lubricant in machinery.

Watch Video Solution

5. Carbon dioxide is collected by the downward displacement of air.

Watch Video Solution

6. Carbon dioxide is acidic in nature.

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7. Carbon monoxide combines with the haemoglobin in the red blood cells of our body to form carboxyhaemoglobin.

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Exercise Matching

1. IUPAC name of acetic acid is.

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Exercise Name The Following

1. Existence of an element in more than one form in the same physical state

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2. The bond between carbon atoms in graphite

Watch Video Solution

3. The process of breakdown of organic substances on heating strongly in the absence of air

Watch Video Solution

4. The property of attracting gases, liquids or solids to its surface by a solid

Watch Video Solution

5. A mixture of sodium bicarbonate and tartaric acid

Watch Video Solution

6. A condition that can cause death by breathing in carbon monoxide

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Exercise Write Balanced Chemical Equations Of The Following

1. Dehydrating cane sugar with concentrated sulphuric acid

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2. Passing carbon dioxide through lime water

Watch Video Solution

3. Sodium bicarbonate reacting with dil. sulphuric acid

Watch Video Solution

4. Carbon dioxide reacting with gaseous ammonia

Watch Video Solution

5. Carbon monoxide reacting with iron(III) oxide

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Exercise Answer The Following In Short

1. What do you understand by allotropy ? Name the allotropic forms of carbon.

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2. Name three crystalline allotropes of carbon.

Watch Video Solution

3. How are synthetic diamonds prepared?

Watch Video Solution

4. What is the electrical and thermal conductivity of graphite?

Watch Video Solution

5. What is fullerene?

Watch Video Solution

6. What do you understand by destructive distillation?

Watch Video Solution

7. What is meant by adsorption ?

Watch Video Solution

8. Why is wood charcoal a better fuel than wood?

Watch Video Solution

9. How is bone charcoal prepared?

Watch Video Solution

10. How is coke obtained?

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Exercise Answer The Following In Detail

1. Discuss the structure of diamond.

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2. Explain the arrangement of carbon atoms in graphite.

Watch Video Solution

3. Diamond And Graphite

Watch Video Solution

4. Explain the structure of Buckminsterfullerene

Watch Video Solution

5. Write four uses of coal.

Watch Video Solution

6. Write four uses of carbon dioxide.

Watch Video Solution

7. Describe the poisonous nature of carbon monoxide.

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Exercise Draw Diagrams Of The Following

1. Discuss the structure of diamond.

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2. What is destructive distillation of wood?

Watch Video Solution

3. How would you prepare carbon dioxide in the laboratory? Describe its acidic nature and the action on lime water. What is photosynthesis ?

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Think And Answer

1. Diamonds have extraordinary brilliance. Explain.

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2. Graphite is soft and slippery and a good conductor of electricity. Why?

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3. Coke is used in the extraction of metals such as zinc and iron from their ores. Why?

 Watch Video Solution

4. Carbon monoxide causes asphyxia. Why?

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