

Acetylene Formula Chemistry Questions with Solutions

Q1. What is the formula of acetylene?

- (a) C_2H_4
- (b) C_2H_2
- (c) C_2H_6
- (d) None of the above

Answer: (b) The formula of acetylene is C_2H_2 .

Q2. Which of the following method is used for the synthesis of acetylene?

- (a) Hydrolysis of calcium carbide
- (b) Addition of ethene
- (c) Both (a) and (b)
- (d) None of the above

Answer: (a) Hydrolysis of calcium carbide is used for the synthesis of acetylene.

Q3. What is the molecular weight of acetylene?

- (a) 26.04 g/mol
- (b) 17.07 g/mol
- (c) 27.04 g/mol
- (d) None of the above

Answer: (a) The molecular weight of acetylene is 26.4 g/mol.

Q4. How many rotatable bonds are there in acetylene?

- (a) Zero
- (b) One
- (c) Two
- (d) None of the above

Answer: (a) There are zero rotatable bonds in acetylene.

Q5. How many bonds does acetylene have?

- (a) 3 σ and 2 π
- (b) 4 σ and 3 π
- (c) 5 σ and 2 π
- (d) 6 σ and 3 π

Answer: (a) Acetylene contains 3 σ and 2 π bonds.

Q6. What is acetylene made of?

Answer: Acetylene is an unsaturated organic compound with the molecular formula C_2H_2 . It contains two carbon atoms bound together by the triple bond at an angle of 180° and two hydrogen atoms bound to carbon atoms.

Q7. What is the IUPAC name of acetylene?

Answer: The IUPAC name of acetylene is ethyne.

Q8. What are the characteristics of acetylene?

Answer: 1. Acetylene is an unsaturated organic compound with the molecular formula C_2H_2 .

2. It is a colourless gas with a faint garlic-like odour.
3. It burns with a sooty flame.
4. It has zero rotatable bonds.
5. It contains three σ and two π bonds.

Q9. How can we synthesise acetylene?

Answer: We can synthesise acetylene in the following ways.

1. Partial combustion of methane (CH_4).
2. Hydrolysis of calcium carbide (CaC_2).
3. Dehydrohalogenation of alkyl dihalides (CH_2X_2).
4. Dehydrohalogenation of vicinal dihalides.

Q10. Is acetylene symmetric?

Answer: Yes, acetylene is a symmetric compound.

Q11. How many bonds does acetylene have?

Answer: Acetylene contains three σ (2 C-H bonds and 1 C-C bond) and two π (between 2 carbon atoms) bonds.

Q12. What is the conjugate acid of acetylene?

Answer: The conjugate acid of acetylene is ethynium.

Q13. What are the applications of acetylene?

Answer: Acetylene is precarious and is used as fuel in its pure form. Some applications of acetylene are mentioned below.

1. It is used in welding.
2. It is used to produce plastics and acrylic acid derivatives.
3. It is used in portable lighting.
4. It is used to produce polyacetylene, the first natural semiconductor.
5. It is used in radiocarbon dating.

Q14. What is the shape of acetylene?

Answer: Acetylene is a linear molecule containing two carbon atoms bound together by the triple bond at an angle of 180° and two hydrogen atoms bound to carbon atoms.

Q15. Match the following.

Column A	Column B
Ethane	2 sp^3 Carbons
Ethylene	2 sp^2 Carbons
Acetylene	2 sp Carbons
Benzene	6 sp^2 Carbons

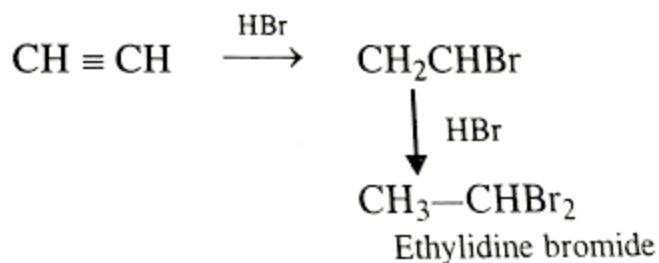
Answer:

Column A	Column B
Ethane	6 sp^2 Carbons
Ethylene	2 sp Carbons
Acetylene	2 sp^2 Carbons
Benzene	2 sp^3 Carbons

Practise Questions on Acetylene Formula

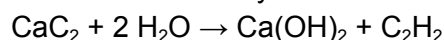
Q1. What happens when hydrogen bromide is added to acetylene?

Answer: Hydrogen bromide reacts with acetylene to form ethylidene bromide.



Q2. How can we synthesise acetylene?

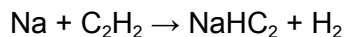
Answer: We can synthesise acetylene by hydrolysing it with calcium carbide.



Q3. How does a metal react with acetylene?

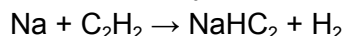
Answer: Acetylene reacts with active metals (e.g., sodium, copper, silver, and mercury) to form explosive acetylides.

It reacts with sodium to produce sodium hydroacetylide and hydrogen.



Q4. What happens when acetylene is treated with sodium metal?

Answer: Acetylene reacts with sodium to produce sodium hydroacetylide and hydrogen.



Q5. What is the acetylene formula?

Answer: Acetylene is an unsaturated organic compound with the molecular formula C_2H_2 . It contains two carbon atoms bound together by the triple bond at an angle of 180° and two hydrogen atoms bound to carbon atoms.