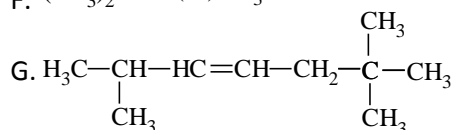
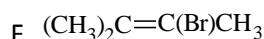
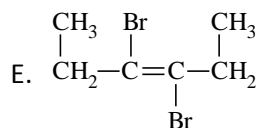
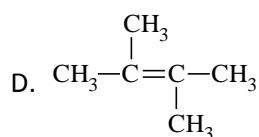
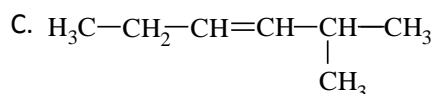
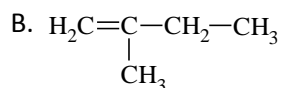
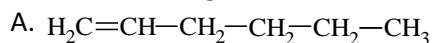


ALKENES

1. Name the following alkenes.



2. Write the structural formula of the following alkenes.

A. 1-hexene

B. 3-methyl, 1-butene

C. 2,4-hexadiene

D. 1-iodo-2-methyl-2-pentene

E. 2-chloro-3-methyl-2-hexene

F. 6,6-dibromo-5-methyl-2,3-heptadiene

G. 1,2-dichloroethene

3. Write down the possible isomers of the alkenes that have the molecular formula, C_5H_{10} .

4. Write down the possible products when HBr is taken out from the following compounds.

A. 1-bromohexane

B. 1-bromo, 2-methylpentane

C. 3-bromo, 2,3-methylpentane

D. 4-bromo, 2-methylpentane

5. Write down the structural formulas of the products that are obtained by the addition of HCl to the following compounds

A. 1-pentene

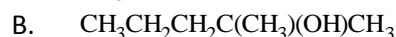
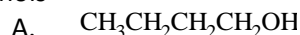
B. 2-methyl, 1-pentene

C. 3-methyl, 1-butene

D. vinylbromide

E. 3-hexene

6. Write down the alkenes obtained from the following alcohols



7. If a 20 g mixture of ethylene and butane at STP is passed through 400 g of 4% aqueous bromine, all ethylene reacts with bromine and the color at aqueous fades. What is the percentage by mass of ethylene in the mixture?

8. How many liters of chlorine gas at STP are required to react with a sample of ethylene obtained from 92 g of ethyl alcohol, $\text{C}_2\text{H}_5\text{OH}$?

9. A 3.36 g sample mixture of ethylene and propene occupies 2.24 L at STP. How many liters of oxygen gas are required to burn the mixture at STP?

10. 27.44 L of oxygen gas consumed to burn 5.6 L of mixture of propene and propane gases. What is the percentage by volume of propene in the mixture?

11. 1 g of hydrogen is required to saturate a sample of alkene which is obtained from 28.75 g of an impure ethyl alcohol, $\text{C}_2\text{H}_5\text{OH}$ by mass?

12. A 10 L mixture of gases consists of carbon dioxide, helium and ethylene at STP. When the gas mixture is passed through a solution of sodium hydroxide, the volume of the mixture reduces by 2.76 L. When the mixture is passed through an aqueous solution of bromine in another experiment, 16 g of bromine is used up. What is the volume of helium in the mixture?

13. A 7 g sample of an alkene can be saturated with 200 g of 8% aqueous solution of bromine. How many liters of hydrogen gas at STP add to a 14 g sample of this alkene?

14. How many grams of ethylene can be produced from 230 g of ethyl alcohol, $\text{C}_2\text{H}_5\text{OH}$, by 80% production?

15. An 8 L sample of hydrogen can be added to a 20 L mixture of ethane and ethylene. What is the percentage by volume of ethane in the original mixture?

16. When 20 cm^3 of a hydrocarbon and 100 cm^3 of oxygen gas are mixed and burned, 10 cm^3 of oxygen

remain unreacted as 60 cm^3 of carbon dioxide form.
What is the molecular formula of the hydrocarbon?

17. At STP 5.6 L of an alkene burns to produce 33 g CO_2 .
Find the name and formula of this alkene.

MULTIPLE CHOICE QUESTIONS

1. To burn 20 L of a mixture of C_2H_4 and C_3H_8 gases, 70 L of oxygen is needed under the same conditions. What is the volume of C_2H_4 in the mixture?

A. 5 B. 7.5 C. 10 D. 12.5 E. 15

2. How many grams of bromine react with the alkene that is produced from 9.2 g of $\text{C}_2\text{H}_5\text{OH}$?

A. 8 B. 16 C. 32 D. 80 E. 160

3. How many liters of air are required to burn 7g of C_2H_4 gas under STP?

A. 67.2 B. 84 C. 89.6 D. 112 E. 134.4

4. 1 mol of O_2 is required to burn a mixture containing an equal number of moles of CH_4 and C_2H_4 gases. What is the weight of the mixture?

A. 11 g B. 44 g C. 88 g D. 110 g E. 280 g

5. How many grams of 20% bromine solution can be decolorized by ethylene produced from 4.6 g of $\text{C}_2\text{H}_5\text{OH}$?

A. 16 B. 40 C. 80 D. 120 E. 160

6. 2 g of H_2 gas is required to saturate 33.6 L of a mixture of C_2H_2 and C_2H_6 gases at STP. How many grams is this gas mixture?

A. 13 B. 15 C. 30 D. 37 E. 43

7. Find the hydrocarbon in which when it is burned, the ratio of the mass of the product CO_2 to the mass of the other product water is 22 / 9.

A. CH_4 B. C_2H_6 C. C_2H_4 D. C_3H_4 E. C_3H_8

8. What is the IUPAC name of the following compound?
 $\text{CH}_3\text{-CH-CH}_2\text{-CH=CH}_2$



- A. 2-chloro-4-pentene
B. 2-chloro-4-pentane
C. 2-chloro-1-pentene
D. 4-chloro-1-pentene
E. 4-chloro-2-pentene

9. How many alkene isomers of butene (C_4H_8) are possible?

A. 1 B. 2 C. 3 D. 4 E. 5

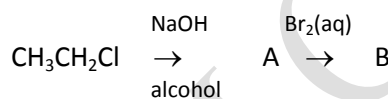
10. How many liters of air are required to burn 7 g of C_2H_4 gas under STP?

A. 54 B. 75 C. 84 D. 12.5 E. 42

11. If a 4.2 g sample of an alkene adds 2.24 L of H_2 at STP, what is the formula of the alkene?

A. C_2H_4 B. C_3H_4 C. C_3H_6
D. C_4H_8 E. C_5H_{10}

12. Given the scheme of the reactions;



What is the name of B?

- A. ethyl bromide
B. 1,2-dibromo ethane
C. ethylene
D. 1-bromo ethane
E. ethyl alcohol

13. Which one cannot react with alkenes?

A. CO_2 B. HCl C. H_2O D. H_2 E. Br_2

14. How many sigma (σ) and pi (π) bonds are there in ethylene?

- A. 2π , 5σ
B. 3π , 5σ
C. 5π , 1σ
D. 1π , 5σ
E. 1π , 10σ

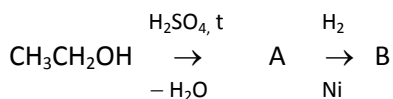
15. How many liters of carbon dioxide can be obtained from the combustion of 4.2 grams of propene?

- A. 2.24 L
B. 4.48 L
C. 6.72 L
D. 5.6 L
E. 11.2L

16. 0.1 mole of an alkene weighs 2.8 grams. What is the molecular formula of the alkene?

- A. C_2H_4
B. CH_4
C. C_5H_{10}
D. C_3H_6
E. C_4H_8

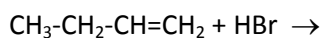
17. Given the scheme of the reactions;



What is the name of B?

- A. ethyl bromide
- B. butene
- C. ethane
- D. ethylene
- E. ethyl alcohol

18. What is the name of the product of the following reaction?



- A. 1-bromo butane
- B. 1-bromo-1-butene
- C. 2-bromo butane
- D. 2-bromo-1-butene
- E. 3-bromo butane

19. Which one of the following statements is wrong for alkenes?

- A. They decolorize aqueous bromine solution.
- B. They can be oxidized by KMnO_4 solution.
- C. They generally give addition reactions.
- D. They can be obtained by dehydration of alcohols.
- E. Their general formula is $\text{C}_n\text{H}_{2n-2}$.

20. Polyethylene is an important polymer. It is used in the production of pipe, sheets, and wire and cable coverings. What is the chemical formula of polyethylene?

- A. $\text{-}(\text{CH}_2\text{-CH}_2\text{-})_n\text{-}$
- B. $\text{-}(\text{CF}_2\text{-CF}_2\text{-})_n\text{-}$
- C. $\text{-}(\text{CH}_2\text{-CH})_n\text{-}$
|
Cl
- D. $\text{-}(\text{CH}_2\text{-CH})_n\text{-}$
|
CN
- E. $\text{-}(\text{CH}_2\text{-CH})_n\text{-}$
|
CH₃