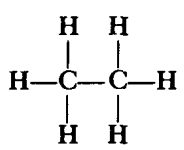
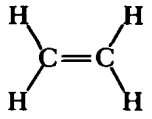
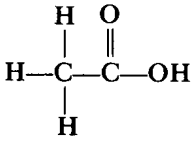
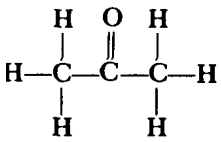
1. Which formula represents an unsaturated hydrocarbon?

A) 

B) 

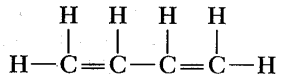
C) 

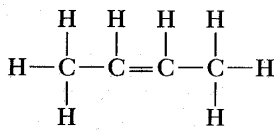
D) 

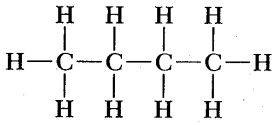
2. The compound $CH_3CH_2CH_2CH_3$ belongs to the series that has the general formula

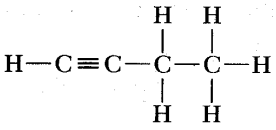
A) C_nH_{2n-2} B) C_nH_{2n+2}
C) C_nH_{n-6} D) C_nH_{n+6}

3. Which structural formula represents a molecule of butane?

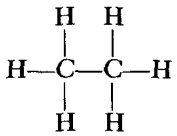
A) 

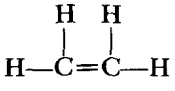
B) 

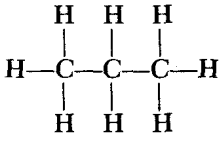
C) 

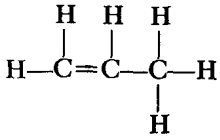
D) 

4. Which structural formula represents ethene?

A) 

B) 

C) 

D) 

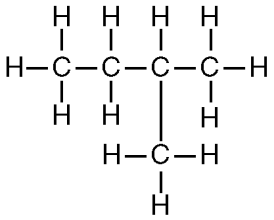
5. Which compound is a member of the alkene series of hydrocarbons?

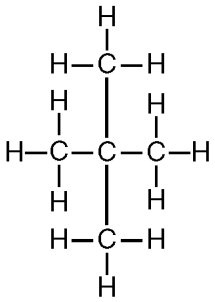
A) benzene B) propene
C) toluene D) butadiene

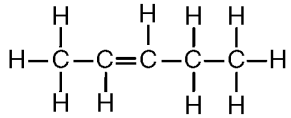
6. Which represents an unsaturated hydrocarbon?

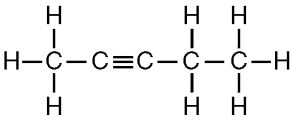
A) C_2H_4 B) C_2H_6
C) C_3H_8 D) C_4H_{10}

7. Which structural formula represents 2-pentyne?

A) 

B) 

C) 

D) 

8. Which general formula represents the homologous series of hydrocarbons that includes the compound l-heptyne?

A) C_nH_{2n-6} B) C_nH_{2n-2}
C) C_nH_{2n} D) C_nH_{2n+2}

9. Butanal, butanone, and diethyl ether have different properties because the molecules of each compound differ in their

A) numbers of carbon atoms
B) numbers of oxygen atoms
C) types of functional groups
D) types of radioactive isotopes

10. Which element is present in all organic compounds?

A) nitrogen B) oxygen
C) carbon D) sulfur

11. The compounds CH_3OCH_3 and CH_3CH_2OH have different functional groups. Therefore, these compounds have different

A) chemical properties
B) gram-formula masses
C) percent compositions by mass
D) numbers of atoms per molecule

12. What is the total number of pairs of electrons that one carbon atom shares with the other carbon atom in the molecule C_2H_4?

A) 1 B) 2 C) 3 D) 4

13. A student investigated four different substances in the solid phase. The table below is a record of the characteristics (marked with an *X*) exhibited by each substance.

Characteristic Tested	**Substance A**	**Substance B**	**Substance C**	**Substance D**
High Melting Point	*X*		*X*	
Low Melting Point		*X*		*X*
Soluble in Water	*X*			*X*
Insoluble in Water		*X*	*X*	
Decomposed under High Heat	*X*			
Stable under High Heat	*X*		*X*	*X*
Electrolyte	*X*			*X*
Nonelectrolyte		*X*	*X*	

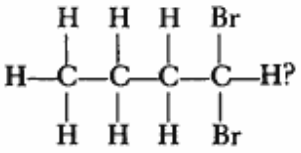
Which substance has characteristics most like those of an organic compound?

A) *A* B) *B* C) *C* D) *D*

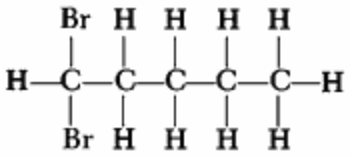
14. Which compound is an isomer of CH_3OCH_3?

A) CH_3COOH B) CH_3CHO
C) C_6H_5OH D) C_2H_5OH

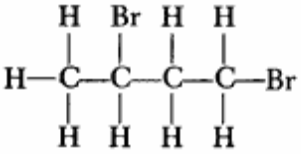
15. Which structural formula represents a compound that is an isomer of



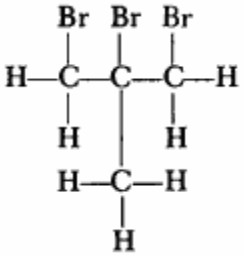
A)



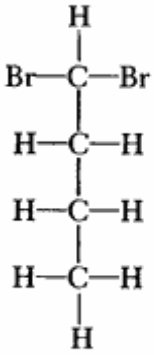
B)



C)



D)



16. The isomers butane and methylpropane have

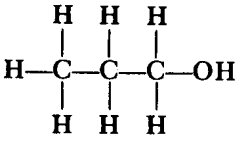
A) the same molecular formula and the same properties
B) the same molecular formula and different properties
C) different molecular formulas and the same properties
D) different molecular formulas and different properties

17. Which is an isomer of $CH_3CH_2CH_2COOH$?

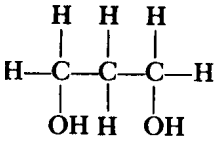
A) $CH_3CH_2OCH_2CH_3$
B) $CH_3CH_2CH_2OCH_3$
C) $CH_3CH_2CH_2CH_2OH$
D) $CH_3COOCH_2CH_3$

18. Which structural formula represents 2-propanol?

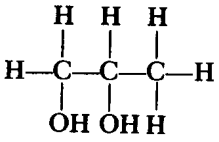
A)



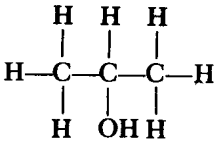
B)



C)

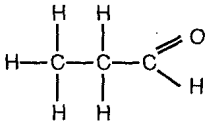


D)

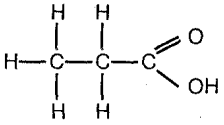


19. Which structural formula represents a primary alcohol?

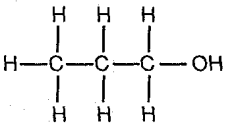
A)



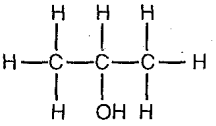
B)



C)

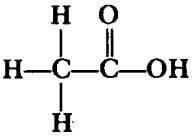


D)

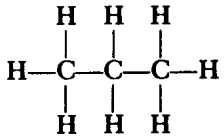


20. Which structural formula represents an aldehyde?

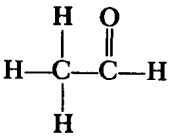
A)



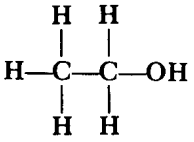
B)



C)

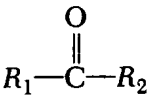


D)

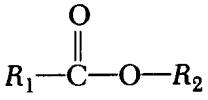


21. Which general formula represents a ketone?

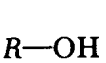
A)



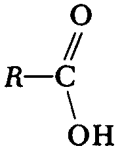
B)



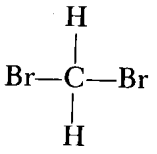
C)

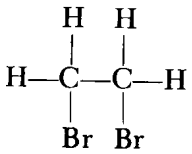


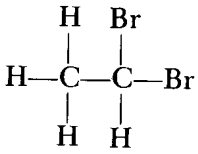
D)

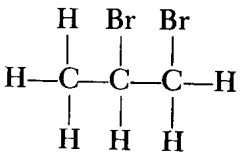


22. Which is the structure for 1,2-dibromoethane?

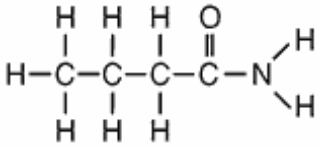
A) 

B) 

C) 

D) 

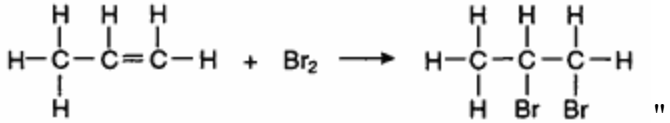
23. Given the formula:



This compound is classified as

A) an aldehyde
B) an amide
C) an amine
D) a ketone

24. Base your answer to the following question on "the organic reaction below.



This reaction is an example of

A) fermentation
B) addition
C) substitution
D) saponification

25. Which equation represents a substitution reaction?

A) $CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$
B) $C_2H_4 + Br_2 \rightarrow C_2H_4Br_2$
C) $C_3H_6 + H_2 \rightarrow C_3H_8$
D) $C_4H_{10} + Cl_2 \rightarrow C_4H_9Cl + HCl$

26. Which equation represents fermentation?

A) $C_2H_6 + Cl_2 \rightarrow C_2H_6Cl + HCl$
B) $C_6H_{12}O_6 \rightarrow 2\ C_2H_5OH + 2\ CO_2$
C) $CH_3COOH + CH_3OH \rightarrow CH_3COOCH_3 + H_2O$
D) $nC_2H_4 \rightarrow (C_2H_4)n$