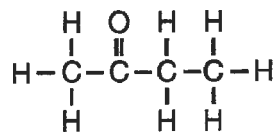
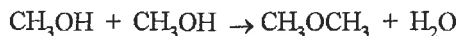


1. What is the IUPAC name of the compound with the following structural formula?

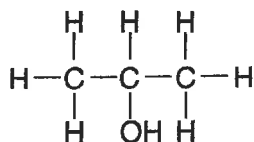


- (A) propanone (B) butanal
 (C) butanone (D) propanal
2. The equation

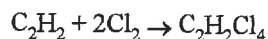


illustrates the

- (A) dehydration of alcohols to form an ether
 (B) dehydration of alcohols to form a polymer
 (C) oxidation of alcohols to form an acid
 (D) oxidation of alcohols to form a ketone
3. Which type of organic compound is represented by the structural formula shown below?



- (A) alcohol (B) ether
 (C) ester (D) aldehyde
4. What is the total number of pairs of electrons shared between the two adjacent carbon atoms in an ethyne molecule?
- (A) 1 (B) 2
 (C) 3 (D) 4
5. Which of the following compounds has the highest normal boiling point?
- (A) C_4H_{10} (B) C_3H_8
 (C) C_2H_6 (D) C_5H_{12}
6. Cellulose, protein, and starch are classified as
- (A) aldehydes (B) natural polymers
 (C) esters (D) synthetic polymers
7. Given the balanced equation for an organic reaction:

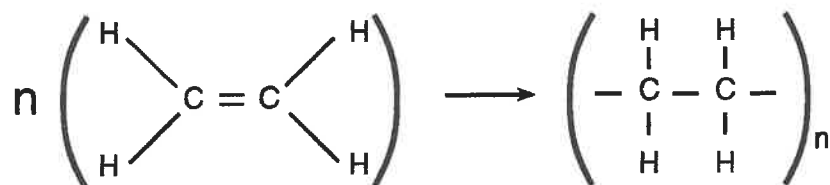


This reaction is best classified as

- (A) esterification (B) addition
 (C) substitution (D) fermentation

8. Which type of reaction is represented by the equation below?

Note: n and n are very large numbers equal to about 2000.



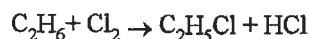
~~(A) fermentation~~

~~(B) polymerization~~

~~(C) saponification~~

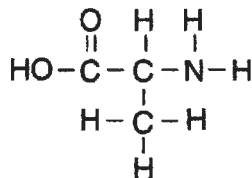
~~(D) esterification~~

9. Given the equation:



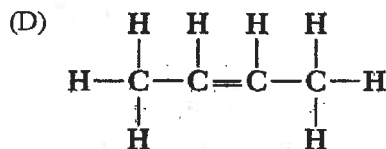
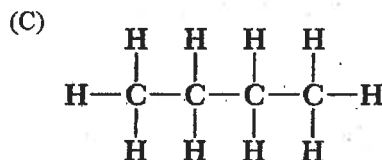
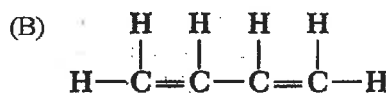
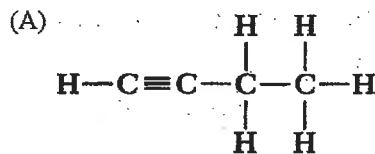
This reaction is best described as

- (A) addition involving a saturated hydrocarbon
 (B) substitution involving an unsaturated hydrocarbon
 (C) addition involving an unsaturated hydrocarbon
 (D) substitution involving a saturated hydrocarbon
10. The molecule below belongs to which class of compounds?



- (A) amino acid (B) alcohol
 (C) ester (D) aldehyde

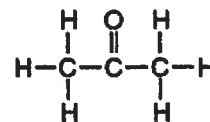
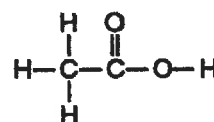
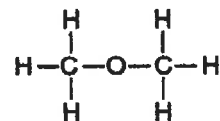
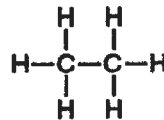
11. Which structural formula represents a molecule of butane?



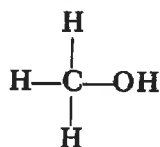
12. If a compound contains only one -OH functional group attached to the end carbon in the chain, it is classified as a

- (A) primary alcohol (B) dihydroxy alcohol
 (C) tertiary alcohol (D) secondary alcohol

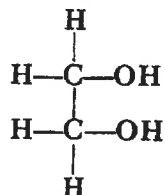
13. Which organic compound will dissolve in water to produce a solution that will turn blue litmus red?



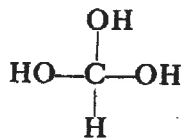
14. Which is the correct structural formula for glycerol?



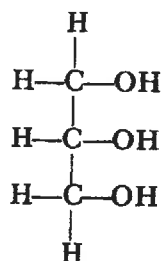
(A)



(B)

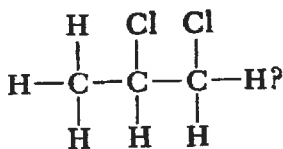


(C)



(D)

15. What is the correct IUPAC name for



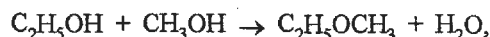
(A) 2,3-dichloropropane

(B) 1,2-dichlorobutane

(C) 2,3-dichlorobutane

(D) 1,2-dichloropropane

16. In the reaction



the organic compound formed is

(A) an acid

(B) an ether

(C) an aldehyde

(D) a ketone

17. In a molecule of CH_4 , the hydrogen atoms are spatially oriented toward the corners of a regular

(A) tetrahedron

(B) square

(C) rectangle

(D) pyramid

18. A compound that is classified as organic must contain the element

(A) oxygen

(B) hydrogen

(C) nitrogen

(D) carbon

19. A molecule of ethane and a molecule of ethene both have the same

(A) number of carbon atoms

(B) empirical formula

(C) number of hydrogen atoms

(D) molecular formula

20. What are the two main products of a fermentation reaction?

(A) sugar and water

(B) ethanol and water

(C) sugar and carbon dioxide

(D) ethanol and carbon dioxide

21. What is the IUPAC name for the compound that has the condensed structural formula $\text{CH}_3\text{CH}_2\text{CH}_2\text{CHO}$?

(A) propanal

(B) butanal

(C) propanol

(D) butanol

22. Which is a saturated hydrocarbon?

(A) propane

(B) ethyne

(C) ethene

(D) propene

23. For simplicity, the structure of benzene is often represented as



(A)



(B)

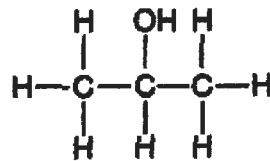
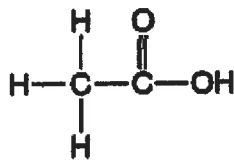
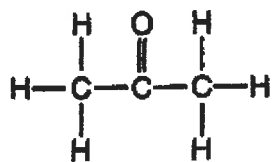


(C)



(D)

24. Given the three organic structural formulas shown below:



Which organic compound classes are represented by these structural formulas, as shown from left to right?

(A) ester, aldehyde, organic acid

(B) ketone, aldehyde, alcohol

(C) ketone, organic acid, alcohol

(D) ester, organic acid, ketone

25. What is the formula of pentene?

(A) C_5H_{10}

(B) C_4H_8

(C) C_5H_{12}

(D) C_4H_{10}

26. The hydrolysis of a fat by a base is called

(A) neutralization

(B) saponification

(C) polymerization

(D) esterification

27. Which formula represents a ketone?

(A) HCOOH

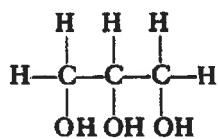
(B) $\text{CH}_3\text{CH}_2\text{OH}$

(C) HCHO

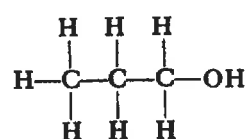
(D) CH_3COCH_3

28. Which is a tertiary alcohol?

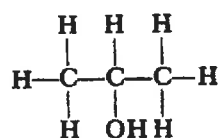
(A)



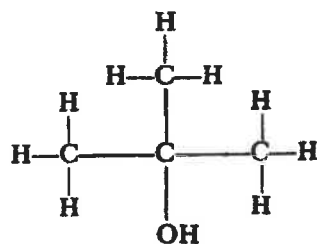
(B)



(C)



(D)



29. In the alkane series, each molecule contains

(A) only one double bond

(B) two double bonds

(C) one triple bond

(D) all single bonds

30. Which is an isomer of $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$?

(A) $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$

(B) $\text{CH}_3\text{COOCH}_2\text{CH}_3$

(C) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_3$

(D) $\text{CH}_3\text{CH}_2\text{CH}_2\text{OCH}_3$

31. Compared with the rate of an inorganic reaction, the rate of an organic reaction is usually

(A) slower, because organic compounds are ionic.

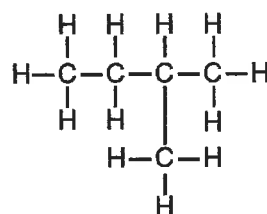
(B) faster, because organic compounds are ionic.

(C) faster, because the organic compounds are molecules.

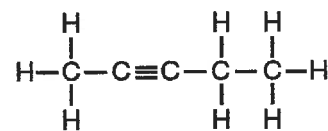
(D) slower, because the organic compounds are molecules.

32. Which structural formula represents 2-pentyne?

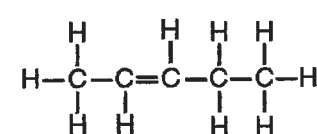
(A)



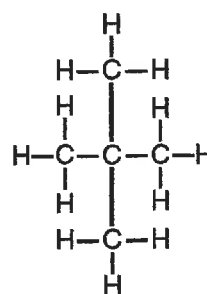
(B)



(C)

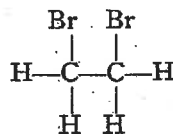


(D)

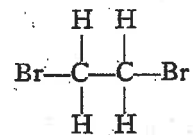


33. Which hydrocarbon has more than one possible structural formula?
- (A) CH_4 (B) C_2H_6
 (C) C_3H_8 (D) C_4H_{10}
34. A carbon atom in an alkane has a total of
- (A) 2 ionic bonds (B) 2 covalent bonds
 (C) 4 covalent bonds (D) 4 ionic bonds
35. The compound $\text{CH}_3\text{CH}_2\text{COOCH}_3$ is an example of
- (A) an acid (B) a polymer
 (C) an alcohol (D) an ester
36. Which represents an unsaturated hydrocarbon?
- (A) C_2H_6 (B) C_2H_4
 (C) C_4H_{10} (D) C_3H_8
37. Molecules of 2-methyl butane and 2,2-dimethyl propane have different
- (A) molecular formulas
 (B) structural formulas
 (C) numbers of carbon atoms
 (D) numbers of covalent bonds

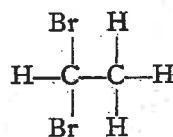
38. What is the correct formula of 1,1-dibromoethane?



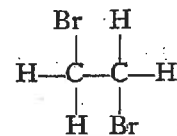
(A)



(B)

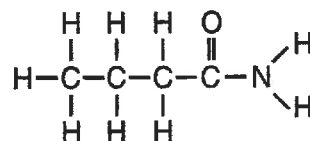


(C)



(D)

39. Given the formula:



This compound is classified as

- (A) an amine (B) an aldehyde
 (C) an amide (D) a ketone
40. The compounds CH_3OCH_3 and $\text{CH}_3\text{CH}_2\text{OH}$ are isomers of each other. These two compounds must have the same
- (A) molecular formula (B) melting point
 (C) density (D) reactivity