



CHEMISTRY

BOOKS - CENGAGE CHEMISTRY

INTRODUCTION TO ORGANIC CHEMISTRY

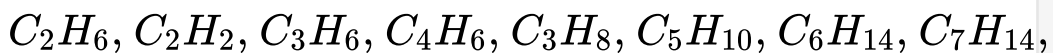
Mandatory Exercise

1. What is the general formula of alkanes/alkenes/alkynes?



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2. Classify the following into alkanes, alkenes, and alkynes:

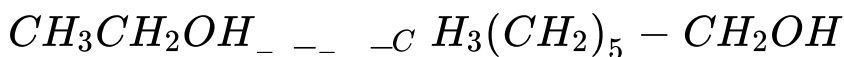


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3. Aldehydes contain _____ as the functional group.

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4. The following two compounds belong to a homologous series. Give the structure of the missing members between these two compounds.





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5. The second compound synthesised in the laboratory from its elements was

A. urea

B. acetic acid

C. methane

D. none of these

Answer: B



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6. The self-linking property of carbon atoms to form long chains is called

A. electronegativity

B. catenation

C. conductivity

D. none of these

Answer: B



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7. The compounds which contain one or more atoms of other elements in a ring of carbon atoms are called

A. heterocyclic

B. alicyclic

C. aromatic

D. acyclic

Answer: A



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8. An example of an alicyclic compound is

A. benzene

B. hexane

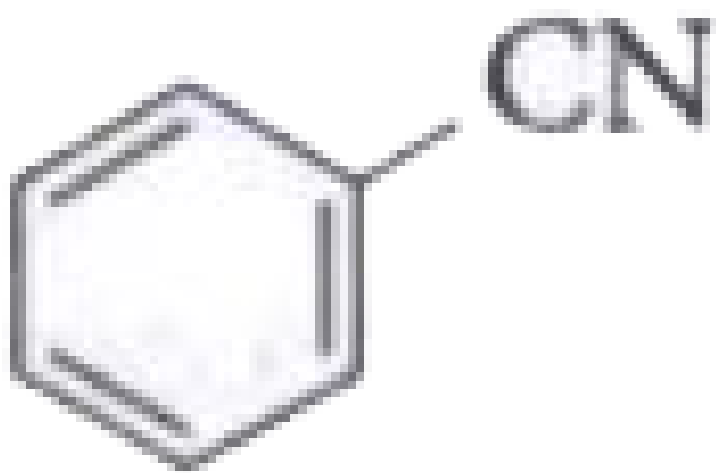
C. cyclohexane

D. furan

Answer: C

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9. The compound



is

A. alicyclic

B. aromatic

C. heterocyclic

D. aliphatic

Answer: B



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10. Which is not true for the homologous series?

A. All the members can be represented by the same general formula.

- B. The homologues have the same general methods of preparation.
- C. They have the same physical properties.
- D. The homologues have a common difference of a CH_2 group.

Answer: C



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11. Alicyclic compounds are

A. aromatic compound

B. aliphatic cyclic compounds

C. hetero cyclic compounds

D. none

Answer: B



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12. Which one of the following is the heterocyclic compound?

A. pyrene

B. thiophene

C. phenol

D. aniline

Answer: B



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13. A group closely related compounds which can be expressed by a general formula and in which two consecutive members are differ by 14 in their molecular masses in called.

A. Homologous series

B. Homogenous series

C. Heterogeneous series

D. electrochemical series

Answer: A



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14. Which one is not correct for a homologous series?

- A. All members have a general formula
- B. All members have same chemical properties
- C. All members have same physical properties
- D. All members have same functional group

Answer: C



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15. Tropolone is an example of

A. Benzeneoid aromatic compound

B. alicyclic compound

C. alicyclic compound

D. none

Answer: C



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16. Acyclic compounds are

- A. open chain compound
- B. closed chain compound
- C. Aromatic compound
- D. none

Answer: A



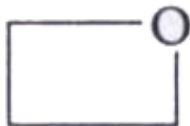
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17. Which of the following compound is Acyclic compound?





B.



C.



D.

Answer: A



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18. Aniline is

A. Heterocyclic

B. Homocyclic

C. Aromatic

D. both C and B

Answer: D



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19. Pyridine is

A. Heterocyclic

B. Homocyclic

C. Aromatic

D. both A and C

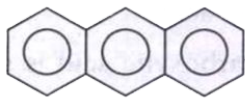
Answer: D

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20. Which of the following compound is Aromatic?



C.



D. ALL

Answer: D



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21. Furan is an example of

A. Heterocyclic

B. Homocycle

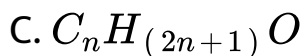
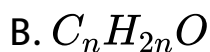
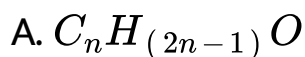
C. aliphatic

D. none

Answer: A

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22. What is the general formula of aliphatic unsaturated alcohol?

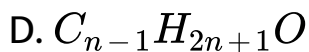
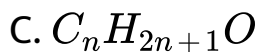
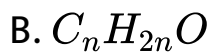
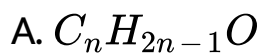


D. none

Answer: C

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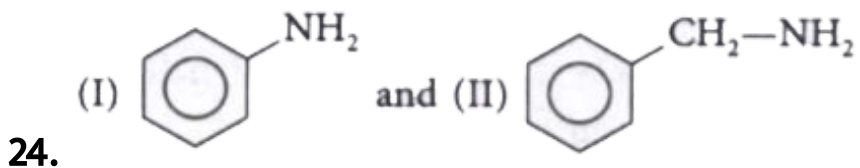
23. What is the general formula of unsaturated aldehyde?



Answer: B



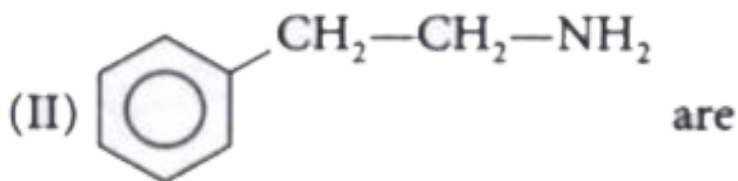
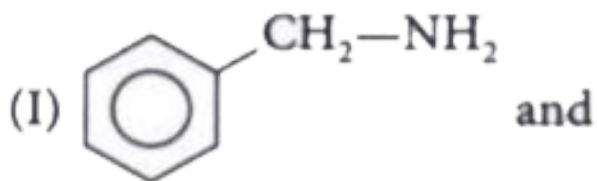
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- A. Homologues
- B. functional isomers
- C. both
- D. none

Answer: D

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25.

A. Homologue

B. both

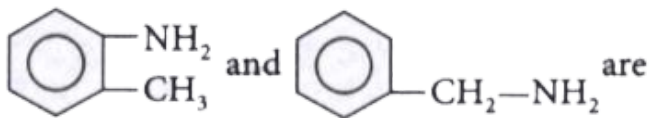
C. functional

D. none

Answer: A



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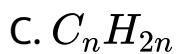
26.

- A. Homologue
- B. both
- C. functional isomer
- D. none

Answer: B

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27. All member of alkene series has general formula _____.



Answer: C



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28. General formula of alkene is similar to

A. alkane

B. alkyne

C. cycloalkane

D. benzene

Answer: C



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29. General formula of aldehyde is similar to

A. alcohol

B. ether

C. ketone

D. acid

Answer: C



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30. General formula of carboxylic acid is similar to

A. amide

B. ester

C. alcohol

D. ketone

Answer: B



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31. What will be the molar mass of 10th member of alkane?

A. 86

B. 170

C. 142

D. 128

Answer: C



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32. What will be the molar mass of 5th member of alcohol homologues series?

A. 88

B. 80

C. 78

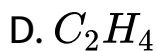
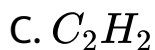
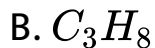
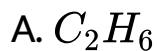
D. 98

Answer: A



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33. Which of the following contain single it bond?



Answer: D



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34. Which of the following contain a bond only?

A. alkane

B. aldehyde

C. ketone

D. carboxylic acid

Answer: A



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35. unsaturated compound contains

A. a bond

B. only o bond

C. both A and B

D. none

Answer: C



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36. Chemical properties of a compound dependent on

A. molar mass

B. functional group

C. no. of C-atom

D. no. of H-atom

Answer: B



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37. Carbon can combine with other carbon atom this tendency is called as

- A. catenation
- B. hybridisation
- C. leading
- D. attraction

Answer: A



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38. Which of the following atom show catenation

A. O

B. H

C. N

D. S

Answer: D



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39. Which of the following atom do not show catenation?

A. C

B. P

C. S

D. none

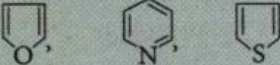
Answer: D



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Consolidated Exercise

1. Match the following

Column A	Column B
(i) Homologous	(p) C_6H_5 , $C_6H_5CH_3$
(ii) Functional groups	(q) 
(iii) Aromatic compounds	(r) Methanol, ethanol
(iv) Heterocyclic compounds	(s) Ethane, ethene, butane
	(t) $-OH$, $-COOH$, $-CHO$, $-CO-$



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2. Which of the following represent(s) a homologous series?

A. Ethane, ethene, ethyne

B. Methane, methanol, methanal

C. Methane, ethane, propane

D. Ethyne, propyne, butyne

Answer:



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3. Members of a homologous series have

A. same general formula

B. same molecular mass

C. similar methods of preparation

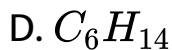
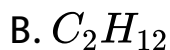
D. similar chemical properties

Answer:



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4. Which of the following molecular formulae belong(s) to alkyne series?



Answer:



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Olympiad And Ntse Level Exercises

1. Which of the following statements is not applicable to carbon compounds?

A. They have low melting and boiling points

B. They are ionic in nature

C. They form homologous series.

D. They are generally soluble in organic solvents.

Answer: B



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2. Which of the following properties is not true regarding organic compounds?

A. They are generally covalent compounds.

B. Show isomerism.

C. Compounds have high melting and boiling points

D. Generally insoluble in water

Answer: C



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3. The open chain aliphatic hydrocarbon with molecular formula C_9H_{16} is

A. an alkane

B. an alkene

C. an alkyne

D. acyclic

Answer: C



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4. The double bond between the two carbon atoms in the C_2H_4 molecule indicates

- A. Two pairs of mobile electrons
- B. Two pairs of shared electrons
- C. Two pairs of unpaired electrons
- D. Two pairs of lone electrons

Answer: B



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5. Alkenes and alkynes are

- A. Saturated aliphatic hydrocarbons
- B. Unsaturated aliphatic hydrocarbons

C. Unsaturated aromatic hydrocarbons

D. Cyclic hydrocarbons

Answer: B



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6. Which of the following compounds have a ring carbon chain structure?

A. Ethane

B. Ethene

C. Ethyne

D. Benzene

Answer: D



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7. Maximum number of bonds between two atoms of a covalent bond can be

A. Four

B. Two

C. Three

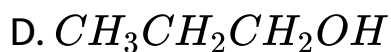
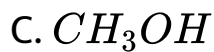
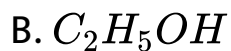
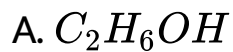
D. One

Answer: C



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8. The correct formula of ethanol is



Answer: B



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9. A hydrocarbon compound burns with a non luminous flame. Which hydrocarbon type does it indicate?

- A. Allcyclic hydrocarbon
- B. Aromatic hydrocarbon
- C. Unsaturated hydrocarbon
- D. Acyclic hydrocarbon

Answer: B



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10. Which of the following statements are usually correct for carbon compounds? These

(i) are good conductors of electricity

(ii) are poor conductors of electricity

(iii) have strong forces of attraction between their molecules

(iv) do not have strong forces of attraction between their molecules

A. (i) and (iii)

B. (ii) and (iii)

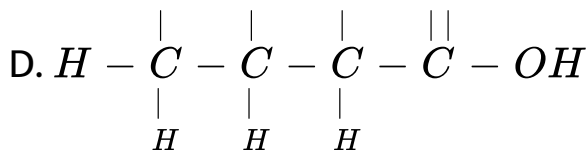
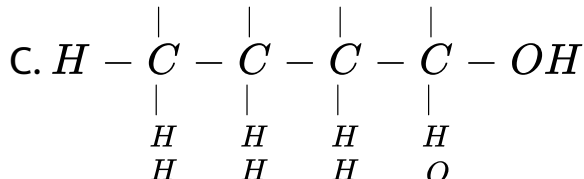
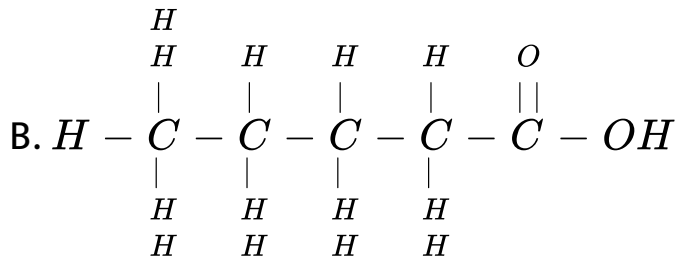
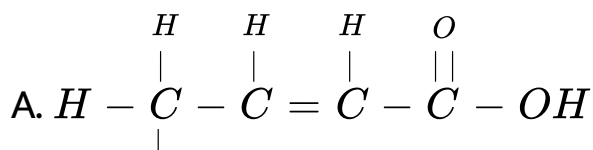
C. (i) and (iv)

D. (ii) and (iv)

Answer: A::D

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11. The correct structural formula of butanoic acid is



Answer: D



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12. Identify the unsaturated compounds from the following

(i) Propane

(ii) Propene

(iii) Propyne

(iv) Chloropropane

A. (i) and (ii)

B. (ii) and (iv)

C. (iii) and (iv)

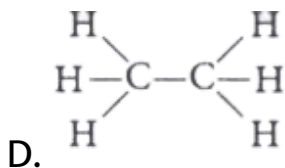
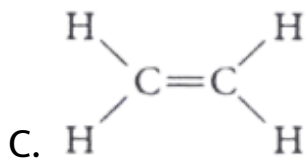
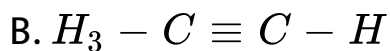
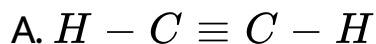
D. (ii) and (iii)

Answer: D



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13. Structural formula of ethyne is



Answer: A



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