



CHEMISTRY

JEE (MAIN AND ADVANCED) CHEMISTRY

PURIFICATION OF ORGANIC COMPOUNDS AND IUPAC NOMENCLATURE

Lecture Sheet Exercise I Level I Main

1. The purity of an organic solid is checked by its

- A. Sharp M.P
- B. Mixed M.P
- C. Ability to sublime
- D. Tendency to dissolve in an organic solvent

Answer: A



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2. Naphthalene is a volatile solid. It is purified by

- A. Crystallisation
- B. Distillation
- C. Steam distillation
- D. Sublimation

Answer: D



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3. A mixture of o-nitrophenol and p-nitrophenol can best be separated by

- A. Simple distillation
- B. Steam distillation
- C. Decantation

D. Fractional distillation

Answer: B



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4. A mixture of two miscible liquids can be separated by simple distillation, when they

- A. they have low B.P's
- B. they have close B.P's with each other
- C. they have large difference in the B.P's
- D. they do not form azeotropic mixture

Answer: C



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5. In Lassaigne's test, the organic compound is fused with sodium metal as to

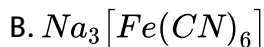
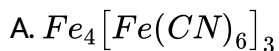
- A. hydrolyse the compound
- B. forms a sodium derivative
- C. covert nitrogen, sulphur of halogens if present into soluble ionic sodium compounds
- D. burn the compound.

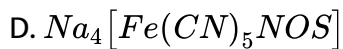
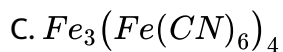
Answer: C



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6. The violet colour obtained during the test of sulphur Lassaigne's test is due to the formation of





Answer: A



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7. Mixture of nitrobenzene and aniline can be separated by

A. Distillation

B. Crystallisation

C. Steam distillation

D. Both (1) and (3)

Answer: C



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8. The sodium fusion extract of an organic compound on acidification with acetic and addition of lead acetate solution gives a black precipitate.

The organic compound contains :

- A. Nitrogen
- B. Halogen
- C. Sulphur
- D. Phosphorus

Answer: C



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9. During the test for halogens, sodium extract is first boiled with nitric acid as to

- A. Decompose NaCN and Na_2S
- B. Make silver halides insoluble

C. Increase the solubility of $AgNO_3$

D. dissolve AgCN

Answer: A



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10. Copper wire test for halogens is known as

A. Liebig's test

B. Lassaigne's test

C. Fusion test

D. Beilstein test

Answer: D



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1. A compound which does not give a positive test in Lassaigne's test for nitrogen is

- A. Urea
- B. Hydrazine
- C. Azobenzene
- D. Phenyl hydrazine

Answer: B



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2. In the Duma's method for the estimation of nitrogen in an organic compound, nitrogen is determined in the form of

- A. Gaseous nitrogen
- B. Gaseous ammonia

C. Ammonium Sulphate

D. Sodium Cyanide

Answer: A



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3. In the estimation of sulphur in an organic compound, fuming nitric acid is used to convert sulphur into :

A. SO_2

B. H_2S

C. H_2SO_3

D. H_2SO_4

Answer: D



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4. In the estimation of nitrogen by Duma's method 1.18g of an organic compound gave 224 ml of N_2 at STP. The percentage of nitrogen in the compound is

A. 20.0

B. 11.8

C. 47.5

D. 23.7

Answer: D



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5. In organic compounds, phosphorus is estimated as:

A. Magnesium pyrophosphate

B. Magnesium phosphate

C. H_3PO_4

D. P_2O_5

Answer: A



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6. Kjeldahl's method cannot be used for the estimation of nitrogen in

A. Pyridine

B. Nitro compounds

C. Azo compounds

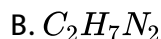
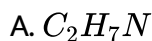
D. All the three above

Answer: D



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7. An organic compound containing carbon, hydrogen and nitrogen have the percentage, 40,13.33 and 46.67 respectively. Its empirical formula will be



Answer: C



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8. The blood red colour in the combination test of nitrogen and sulphur in organic compound is due to the formation of

A. Ferric thiocyanate

B. Ferric acetate

C. Ferrous sulpho cyanide

D. Ferric cyanide

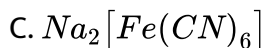
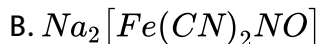
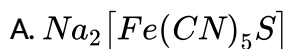
Answer: A

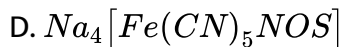


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9. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

In the process of testing elements in Lassaigne's test, which of the following reactions do not occur.





Answer: D



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10. Which of the following compounds gives blood red colouration when its Lassaigne's extract is treated with alkali and ferric chloride ?

A. Phenyl hydrazine

B. Diphenyl sulphide

C. Thiourea

D. Benzamide

Answer: C



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11. An organic compound which produces a bluish green coloured flame on heating in presence of copper is

- A. Chlorobenzene
- B. Benzaldehyde
- C. Aniline
- D. Benzamide

Answer: A



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12. Fractional crystallization is carried out to separate

- A. Organic solids mixed with inorganic solids
- B. Organic solids highly soluble in water
- C. Organic solids having small difference in their solubilities in a suitable solvent

D. Organic solids having great difference in their solubilities in a suitable solvent

Answer: C



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13. When N and S both are present in an organic compound, the sodium fusion extract with $FeCl_3$ gives

A. Green colour

B. Blue colour

C. Yellow colour

D. Red colour

Answer: D



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14. Two substances when separated on the basis of partition coefficient between two liquid phases, the technique is known as

- A. Column chromatography
- B. Paper chromatography
- C. GLC
- D. TLC

Answer: B



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15. Absolute alcohol can be prepared from rectified spirit by

- A. Fractional distillation
- B. Steam distillation
- C. Azeotropic distillation
- D. Vacuum distillation

Answer: C



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16. The ammonia evolved by the treatment of 0.30 g of an organic compound for the estimation of nitrogen was passed in 100 ml of 0.1 M sulphuric acid. The excess of acid required 20 mL of 0.5 M solution hydroxide solution for complete neutralization. The organic compound is

- A. acetamide
- B. benzamide
- C. urea
- D. thourea

Answer: C



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17. 28 mg of an organic compound containing nitrogen was digested according to Kjeldahl's method and the evolved ammonia was absorbed in 20 mL of 0.1 M HCl solution. The excess of the acid required 15 mL of 0.1 M NaOH solution for complete neutralization. Then the percentage of 'N' in the compound is

A. 50

B. 30

C. 25

D. 40

Answer: C



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18. Benzene and aniline are liquids. Their mixture can be separated by

A. dil - NaOH

B. dil - HCl

C. distillation

D. diethyl ether

Answer: B::C



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19. Which of the following methods are generally used for purification of organic liquids

A. Steam distillation

B. Simple distillation

C. Fractional distillation

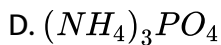
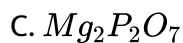
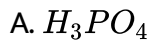
D. Vacuum distillation

Answer: A::B::C::D



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20. Which of the following are formed in the process of estimation of phosphorus



Answer: A::B::C



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21. Kjeldahl's method cannot be used for the estimation of nitrogen in

A. Nitrobenzene

B. Pyridine

C. Azobenzene

D. Acetanilide

Answer: A::B::C



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22. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

Which of the following is not applicable to Lassaigne's test

- A. The nitrogen, halogens and sulphur are converted into inorganic salts
- B. It can be used for the detection of hydrogen in the organic compound

C. During fusion of the organic compound with Sodium,

Na_2S , $NaCN$ and NaX are formed

D. It is possible to differentiate between halogens

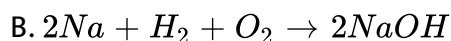
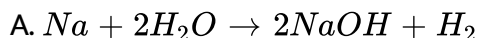
Answer: B

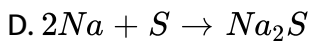
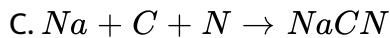


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23. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

In the process of testing elements in Lassaigne's test, which of the following reactions do not occur.





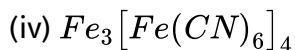
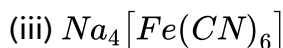
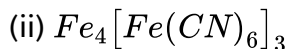
Answer: B



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24. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

During testing of nitrogen in organic compound by Lassaigne's test, which of the following compounds are formed.



- A. only (i)
- B. both i and (iii)
- C. only i, ii, iii
- D. only ii

Answer: C



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25. Steam distillation is used to purify a compound which is steam volatile and insoluble in water. The impurities should not be steam volatile. It is based on the principle that liquid will boil when partial pressure $p = p_1 + p_2$.

It reduces the boiling point of liquid.

$$\frac{\text{Weight of water distilled}}{\text{Wt of substance distilled}} = \frac{\text{M.wt of water} \times \text{V.P. of steam}}{\text{M.Wt of substance} \times \text{V.P. of aniline}}$$

Isolation of essential oils from flowers etc is done by

- A. Steam distillation
- B. Distillation

C. Fractional distillation

D. Distillation under reduced pressure

Answer: A



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26. Steam distillation is used to purify a compound which is steam volatile and insoluble in water. The impurities should not be steam volatile. It is based on the principle that liquid will boil when partial pressure $p = p_1 + p_2$. It reduces the boiling point of liquid.

$$\frac{\text{Weight of water distilled}}{\text{Wt of substance distilled}} = \frac{\text{M.wt of water} \times \text{V.P. of steam}}{\text{M.Wt of substance} \times \text{V.P. of aniline}}$$

Which of the following is steam volatile

A. o-nitrophenol

B. p-nitrophenol

C. p-hydroxy benzaldehyde

D. Ethanol

Answer: A



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27. Steam distillation is used to purify a compound which is steam volatile and insoluble in water. The impurities should not be steam volatile. It is based on the principle that liquid will boil when partial pressure $p = p_1 + p_2$. It reduces the boiling point of liquid.

$$\frac{\text{Weight of water distilled}}{\text{Wt of substance distilled}} = \frac{\text{M.wt of water} \times \text{V.P. of steam}}{\text{M.Wt of substance} \times \text{V.P. of aniline}}$$

Calculate weight of aniline distilled if weight of water distilled is 100g

when $P_{\text{organic compound}} = 100\text{mm}$ and $P_{H_2O} = 200\text{mm}$

A. 250 g

B. 258 g

C. 100 g

D. 25.8 g

Answer: B

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28. Lassaigne's test is used for detection of elements N, S, X and P. The sodium fused extract is tested for these elements with appropriate reagents. The observation made in to identify the element present in the organic compound.

The sodium fusion extrat is treated with $FeSO_4$, followed by H_2SO_4 , gave blue colour. The element present in the compound is

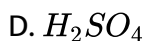
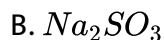
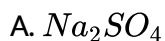
- A. sulphur
- B. nitrogen
- C. chlorine
- D. Phosphorus

Answer: B

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29. Lassaigne's test is used for detection of elements N, S, X and P. The sodium fused extract is tested for these elements with appropriate reagents. The observation made in to identify the element present in the organic compound.

Sulphur is organic compound on fusion with metallic sodium will be converted into



Answer: C



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30. Lassaigne's test is used for detection of elements N, S, X and P. The sodium fused extract is tested for these elements with appropriate

reagents. The observation made in to identify the element present in the organic compound.

The sodium fusion of extract of an organic compound containing S, N on treatment $FeCl_3$ solution gives a coloured solution. The colour of the solution is

- A. blue
- B. green
- C. yellow
- D. blood red

Answer: D



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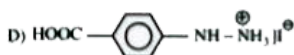
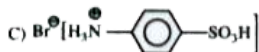
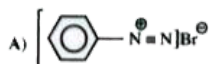
	Column - I		Column - II
	(A) glycerol	(P)	Steam distillation
31.	(B) o-nitrophenol	(Q)	Beilstein's test
	(C) Anthracene	(R)	Vaccum distillation
	(D) Halogens	(S)	Sublimation



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32. Match the following columns

Column-I
(Compound)



Column-II
(Test)

P) Sodium fusion extract of the compound gives Prussian blue colour with FeSO_4

Q) Sodium fusion extract of the compound gives blood red colour with FeSO_4

R) Lassaigne's extract (L.E.) in CS_2 and $\text{C}_2\text{H}_5\text{OH}$ water gives orange colour

S) L.E. with $[\text{Fe}(\text{CN})_5\text{NO}]^{2-}$

Column-I

Column-II

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33.

Column - I

(Methods of separation)

(A) Separated by treatment with dil. NaOH

(B) Extraction with dil. HCl , a compound

(C) Separated by NaHCO_3 solution, a

(D) Separated by conc. H_2SO_4 , which dissolves a compound and reprecipitates it

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34. Find the number of sp carbons of Hept 3, 4 diene 1,6 diyne.



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35. How many methyl groups present in neopentane.



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Lecture Sheet Exercise II Level I Main

1. In which of the following all carbon atoms are of same hybridisation

A. 1, 3 - Butadiene

B. Hexane

C. Acetylene

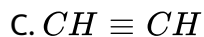
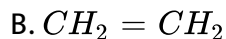
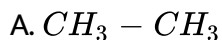
D. All the above

Answer: D



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2. In which of the following the bond energy between carbon atoms is highest



Answer: C



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3. Which of the following types of carbon atoms possess highest electronegativity



B. sp^2

C. sp

D. All the equal E.N.

Answer: C



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4. The highest bond energy is for

A. $C - H_{sp}$

B. $C - H_{sp^2}$

C. $C - H_{sp^3}$

D. All have equal energy

Answer: A



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5. The number of atoms collinear in $H_3C - C \equiv C - C \equiv C - CH_3$ is

- A. Four
- B. Six
- C. Ten
- D. Eight

Answer: B



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6. Which of the following molecules is both planar and linear

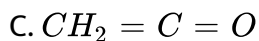
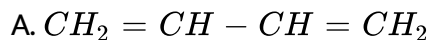
- A. $CH_2 = CH - CH = CH_2$
- B. $CH \equiv C - C \equiv C - H$
- C. $CH_3 - C \equiv C - C \equiv C - CH$
- D. $CH_2 = C = CH_2$

Answer: B



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7. Which of the following is planar in all its conformation



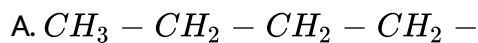
D. Both (2) & (3)

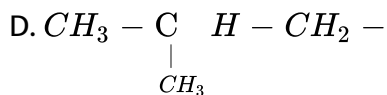
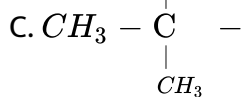
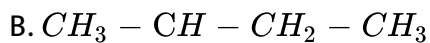
Answer: D



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8. Secondary butyl group is





Answer: B



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9. The correct IUPAC name of $CH_3 - CH_2 - CH(CH_3) - CH(C_2H_5)_2$ is

A. 4-Ethyl-3-methyl hexane

B. 3-Ethyl-4-methyl hexane

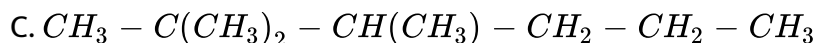
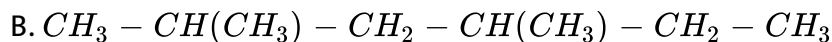
C. 4-Methyl-3-ethyl hexane

D. 2, 4, - Diethyl pentane

Answer: B

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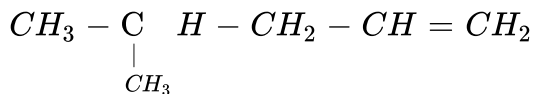
10. Which of the following represents 2,2,3-Trimethyl hexane?



Answer: C

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11. The IUPAC name of the following compound is



A. 2-Methylpent-4-ene

B. 4-Methylpent-1-ene

C. Hexene

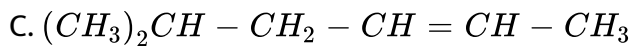
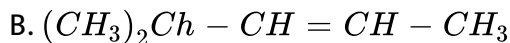
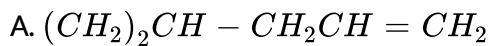
D. 3-Methyl pent-1-ene

Answer: B



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12. The structure of 4-methylpent-2ene is



Answer: B



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13. The IUPAC name of $CH_3 - C \equiv C - CH(CH_3)_2$ is

- A. 4-Methyl-2-pentyne
- B. 4,4-Dimethyl-2-butyne
- C. Isopropylmethyl acetylene
- D. 2-Methyl-4-pentyne

Answer: A



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14. IUPAC name of $CH_2 = CH - CH = CH_2$ is

- A. 1, 2-Butadiene
- B. 1,3-Butadiene
- C. 1, 4-Butadiene
- D. Butadiene

Answer: B



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15. IUPAC name of $CH_2 = C = CH_2$ is

A. 1, 2-Propadiene

B. 1,1-propadiene

C. 2,2-Propopadiene

D. 1,3-Propadiene

Answer: A



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16. IUPAC name of $CH_2 = CH - CH(CH_3)_2$ is

A. 1, 1-Dimethyl-2-propane

B. 3-Methyl-1-butene

C. 2-vinyl propane

D. 1-Isopropyl ethylene

Answer: B



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17. IUPAC name of $\text{CH}_3 - \overset{\overset{\text{CH}_3}{|}}{\underset{\underset{\text{CH}_3}{|}}{\text{C}}} - \text{CH} = \text{CH}_2$ is

A. 3,3,3-Trimethyl-1-propene

B. 1,1,1-Trimethyl-3-propene

C. 3,3-Dimethyl-1-butene

D. 1,1-Dimethyl-3-butene

Answer: C



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18. IUPAC name of $(CH_3)_3CCH_3$ is

- A. 1,1,1-Trimethylethane
- B. 2,2,2-Trimethylpropane
- C. 2,2,2-Trimethylethane
- D. 2,2-Dimethylpropane

Answer: D



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19. The structural formula of 3-ethyl-2-methyl hexane is

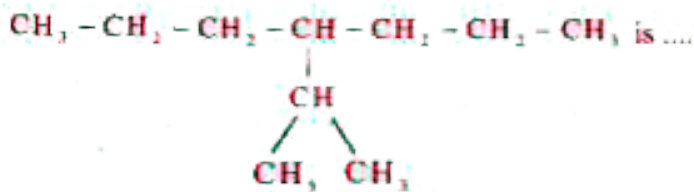
- A. $CH_3 - CH(CH_3) - CH(C_2H_5) - CH_2 - CH_2 - CH_3$
- B. $CH_3 - CH_2 - CH(C_2H_5) - CH(CH_3) - CH_2 - CH_3$
- C. $CH_3CH(C_2H_3)CH(CH_3)CH_2CH_2CH_3$
- D. $CH_3CH(CH_3)CH(CH_3)CH_2CH_2CH_3$

Answer: A



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20. The systematic name of organic compound having the structure



- A. 4-Isopropyl hexane
- B. 2-methyl-3-propyl hexane
- C. Isodecane
- D. 4-(1-Methylethyl) heptane

Answer: D



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1. IUPAC name of $CH \equiv C - CH = CH_2$ is

- A. But-1-yn-3-ene
- B. But-1-en-3-yne
- C. But-1-yn-2-ene
- D. None of the above

Answer: B



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2. The IUPAC name of $(CH_3)_3C - C \equiv CH$ is

- A. 2,2-dimethylbut-3-yne
- B. 2,2-dimethylpent-4-yne
- C. 3,3-dimethylbut-1-yne

D. 3,3-dimethylpent-1-yne

Answer: C



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3. The compound $CH_3 - \underset{\substack{| \\ CH_2 - CH_3}}{C} = CH - CH_3$ is

A. 2-ethyl-2-butene

B. 3-methyl-3-pentene

C. 3-methyl-2-pentene

D. 3-ethyl-2-butene

Answer: C



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4. The IUPAC name of $CH_3 - CH_2 - \underset{\substack{| \\ CH_3}}{C} - H - (CH_2)_3 - CH_3$

- A. 3-methylhexane
- B. 4-methylhexane
- C. 5-methylheptane
- D. 3-methylheptane

Answer: D



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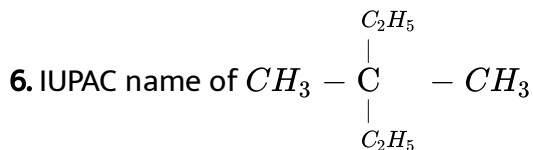
5. IUPAC name of $(CH_3)_2CH - CHBr_2$

- A. 1,1-dibromo-2-methyl propane
- B. 2-methyl-3-bromo propane
- C. iso propyl Bromide
- D. 3° butyl bromide

Answer: A



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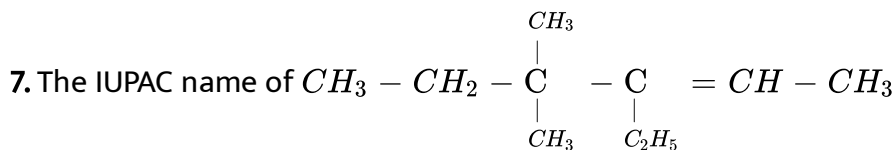


- A. 2,2-Diethylpropane
- B. 3,3-Dimethylpentane
- C. 3-ethyl-3-methylbutane
- D. 3-ethyl-2-methylbutane

Answer: B



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- A. 3-ethyl-4,4-dimethyl-2-hexene
- B. 4-ethyl-3,3-dimethyl-4-hexene

C. 4-ethyl-3,3-dimethyl-2-hexene

D. 3,4-Diethyl-4-methylpentane

Answer: A



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8. IUPAC name of $CH_3 - \underset{\underset{C_2H_5}{|}}{C} - H - CH_2 - \underset{\underset{C_2H_5}{|}}{C} - H - CH_3$

A. 2,4-diethylpentane

B. 3,5-dimethylheptane

C. 3-methyl-5-ethylhexane

D. 5-ethyl-3-methylhexane

Answer: B



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9. IUPAC name of $CH_3 - \underset{\begin{array}{c} || \\ CH_2 \end{array}}{C} - CH_2 - \underset{\begin{array}{c} || \\ CH_2 \end{array}}{C} - CH_3$

- A. 2,4-pentadiene
- B. 2,4-dimethyl-1,4-pentadiene
- C. 2,4-butadiene
- D. 2,4-ethenylpentane

Answer: B



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10. IUPAC name of $CH_3 - CH_2 - CH_2 - \underset{\begin{array}{c} | \\ CH_3 - CH - CH_3 \end{array}}{CH} - CH_3$ is

- A. 2,3-dimethylhexane
- B. 2-methyl-3-propylbutane
- C. 2-isopropylpentane
- D. Nonane

Answer: A



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11. The IUPAC name of the compound $CH_2(OH)CH(NH_2)COOH$ is

- A. 2-Amino-1-hydroxy propanoic acid
- B. 1-Hydroxy-2-amino propan-3-oic acid
- C. 2-Amino-3-hydroxy propanoic acid
- D. 1-Amino-2-hydroxy propanoic acid

Answer: C



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12. The IUPAC name of $CH_3CH_2OCH_2\overset{\overset{O}{\parallel}}{C}-H$ is

- A. Formyl methyl ethyl ether

B. Ethyl aldo methyl ether

C. 2-Ethoxy formate

D. 2-Ethoxy ethanal

Answer: D



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13. The correct IUPAC name of $CH_3 - \overset{\overset{O}{\parallel}}{C} - O - \overset{\overset{O}{\parallel}}{C} - CH_2CH_3$

A. Acetyl methanoate

B. Keto ethanoate

C. Ethoxy methanoate

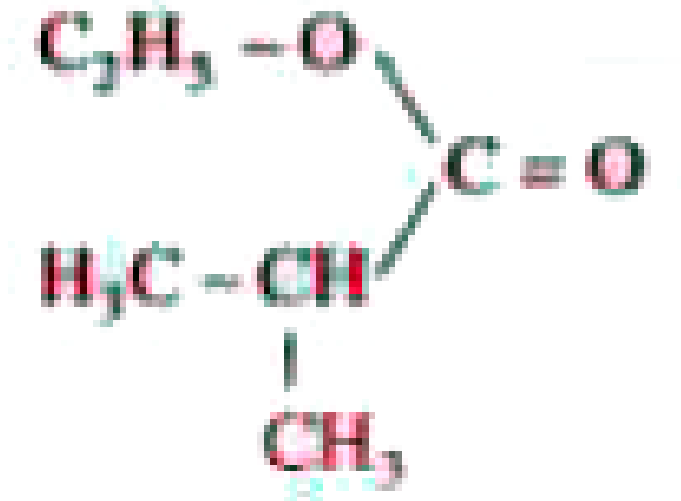
D. Ethanoic propanoic anhydride

Answer: D



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14. The IUPAC name of



- A. Ethoxy methanone
- B. Ethoxy propanone
- C. Ethyl-2-methyl propanoate
- D. 2-methyl ethoxy propanone

Answer: C



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15. IUPAC name of $CH_3 - \underset{\underset{OCH_3}{|}}{C} - H - \overset{\overset{O}{||}}{C} - \underset{\underset{CH_3}{|}}{C} - H - OCH_2 - CH_3$

A. 2-Methoxy-4-ethoxy-pentan-3-one

B. 2-Ethoxy-4-methoxy-pentan-3-one

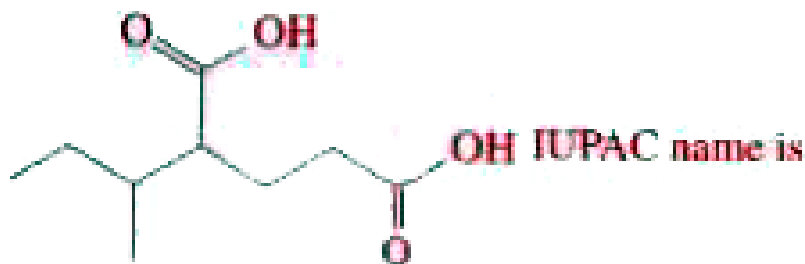
C. 2,4-Dimethoxy hexanone

D. 2-Ethoxy-3-methoxy-pentan-3-one

Answer: B



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16.

IUPAC

name is

A. 4-Carboxy-5-methylhepanoic acid

B. 1,3-dicarboxy-4-methylhexane

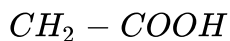
C. 1-Phenyl-butan-1-one

D. 2-iso butyl pentane 1,5 dioic acid

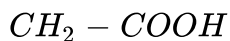
Answer: D



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17. The IUPAC name of $C - (OH)COOH$ is



A. 2-hydroxy propane 1,2,3-tricarboxylic acid

B. 3-hydroxy 1,2,3-pentanetrioic acid

C. 3-Carboxy-3-hydroxy-1,5-pentandioic acid

D. both (a) & (c)

Answer: D



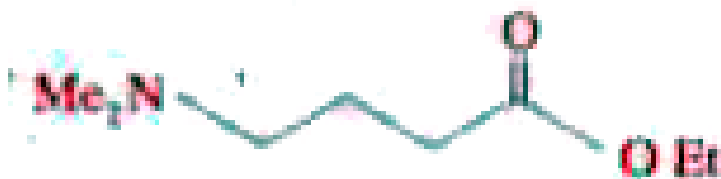
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18.

IUPAC

name

of



- A. Ethyl 4-N, N-dimethylaminopentanoate
- B. 1-N,N-dimethylamino-4-ethoxybutane
- C. Ethyl 4-N, N-dimethylamino butanoate
- D. Ethyl-3-N, N-dimethyl butanoate

Answer: C



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19. IUPAC name of $\text{CH}_3 - \underset{\text{CH}_3}{\text{N}} - \overset{\text{Me}}{\underset{\text{CH}_2\text{CH}_3}{\text{C}}} - \text{Et}$ is

- A. 3-Methyl-N, N-dimethyl-3-pentanamine
- B. 2-Methyl-3-N, N-dimethylammonio pentane
- C. 3-Methyl-3-N, N-dimethylpentane
- D. None of the above

Answer: D



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20. IUPAC name of $\text{CH}_2 = \underset{\text{CH}_3}{\text{C}} - \text{CH}_2 - \overset{\text{O}}{\parallel} \text{C} - \text{OEt}$

- A. Ethyl 2-Methylbut-3-enoate
- B. 3-Ethylcrboxyprop-1-ene
- C. 4-oxo-4ethoxy-1-butane

D. Ethyl 3-methylbut-3-enoate

Answer: D



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21. Which of the following statements is/are correct ?

- A. Spiro compounds contain fused rings at quaternary carbon
- B. Bicyclo compounds contain two rings connected by bridge
- C. Bicyclo compounds can be bridged or fused.
- D. Lower Cyclic alkynes are unstable.

Answer: A::B::C::D



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22. Which of the following statements is correct

- A. Sharp M.P. is the criteria of a pure organic solid
- B. Impurity in liquid elevates the B.P. of the liquid
- C. Impurity in solid decreases the M.P. of the solid
- D. Decrease of pressure decreases the B.P. of the liquid

Answer: A::B::C::D



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23. The name chloromethyl acetylene implies

- A. $H_3C - C \equiv C - Cl$
- B. $H_3C - CH = CH - Cl$
- C. $ClH_2C - C \equiv CH$
- D. $ClH_2C - CH = CH_2$

Answer: A::C



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24. In the following correct statements are

A. IUPAC name of pyruvic acid is 2-oxopropanoic acid

B. $CH_3 - \underset{\substack{| \\ OH}}{C} - H - CH_2 - CH_2 - CH_3$ also called iso amyl alcohol

C. IUPAC name of acetonitrile is ethanenitrile

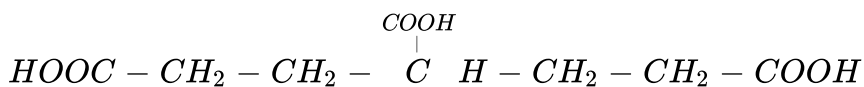
D. cinnamic acid is 3-phenylprop-2-enoic acid

Answer: A::C::D



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25. Which of the following is correct IUPAC names are correct for the compound?



A. Pentane-1,3,5-tricarboxylic acid

B. 4-carboxyheptane-1,7 dioicacid

C. Heptane-1,4,7-trioicacid

D. Octane-14,7-triolacid

Answer: A



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26. Which of the following statements is/are correct ?

(1) Two organic compounds with the same general formula must belong to the same homologous series.

(2) Two organic compound with one of the functional groups the same must belong to the same homologous series.

(3) Two organic compounds with the molecular mass differing by 14 must belong to the same homologous series.

A. 1 only

B. 2 only

C. 1 and 3 only

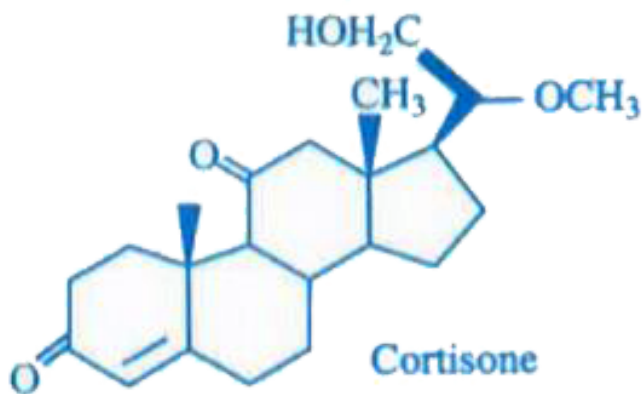
D. (b) and (c) only

Answer: B



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27. The functional groups in cortisone are:



A. Ether, alkene, alcohol

B. Alcohol, ketone, alkene, ether

C. Alcohol, ketone, amine

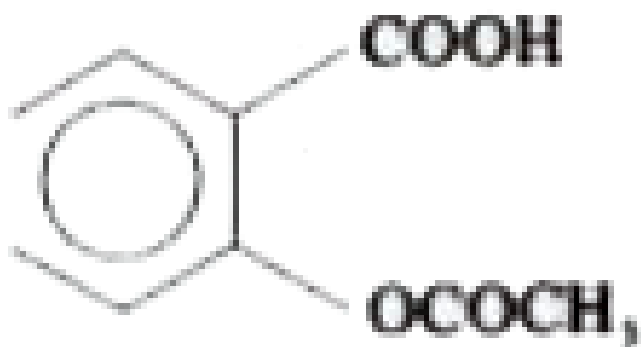
D. Ether, amine, ketone

Answer: B



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28. Aspirin is widely used as an analgesic drug. It is optically inactive. The structure of aspirin is



Ratio of SP : SP^2 : SP^3 carbon hybrid orbitals in the Aspirin is

A. 0: 6: 1

B. 5: 2: 3

C. 4: 1: 6

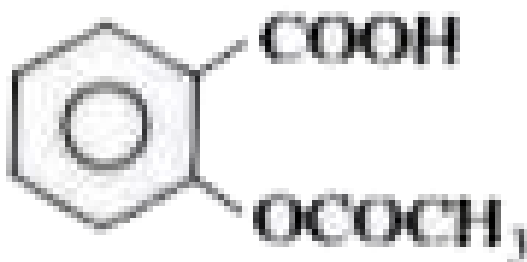
D. 1: 6: 2

Answer: A



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29. Aspirin is widely used as an analgesic drug. It is optically inactive. The structure of aspirin is



Which of the following is not correct name for Aspirin ?

- A. 2-O-Acetyl salicylic acid
- B. 2-Acetoxy benzoic acid
- C. 2-Acetoxy salicylic acid
- D. 2-Acetoxy benzene carboxylicacid

Answer: C

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30. Match the following columns

Column-I (Compound)

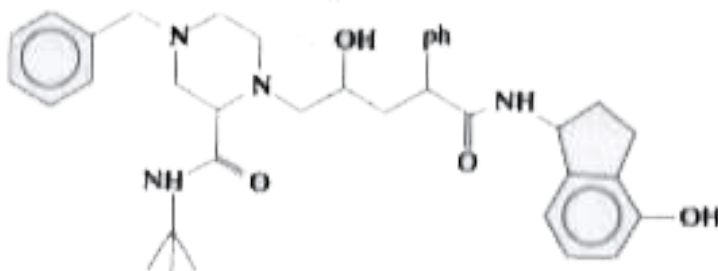
- A) C_4H_{10} with only 1° H atoms
- B) C_6H_{12} with only 2° H atoms
- C) C_6H_{12} With only 1° and 2° H atoms
- D) C_4H_{10} with 12 secondary and 2 tertiary H atoms

Column-II (Structure)

- P)
- Q)
- R)
- S)

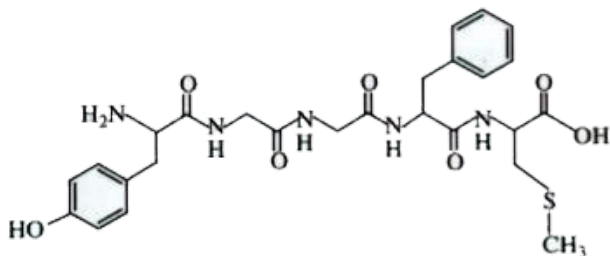
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31. How many types of functional groups are present in the following structure.



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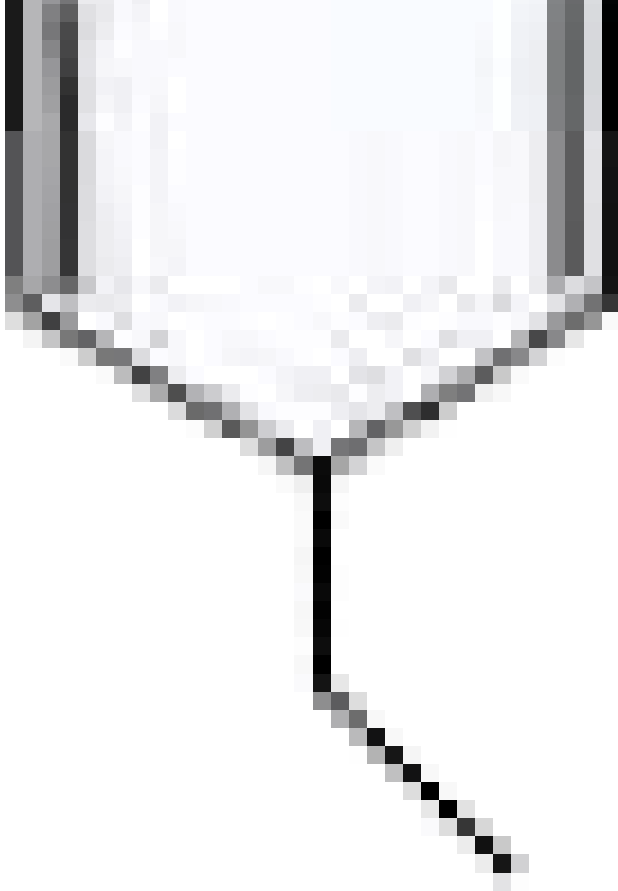
32. Met-enkephalin, an endorphin, serves as natural pain reliver that changes or removes the perception of nerve signals, How many types of functional groups are present in Met-enkephalin.



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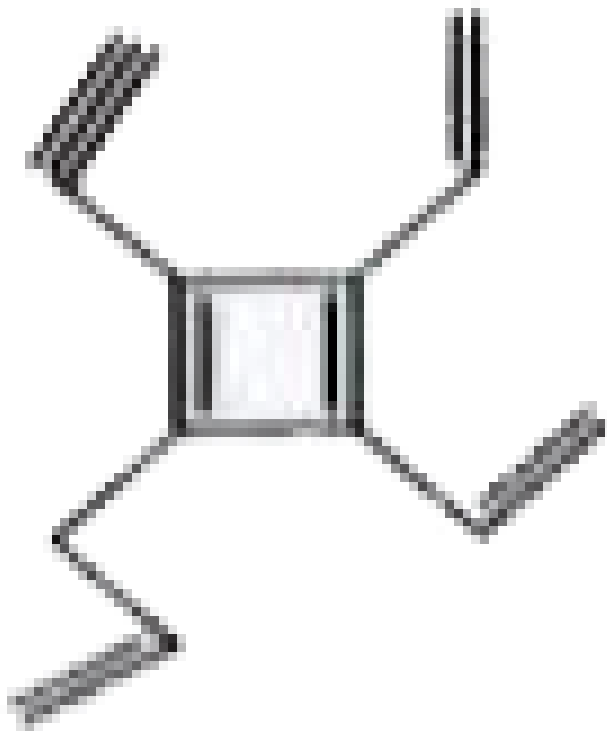
33. Find the number of primary hydrogens of the following compound.





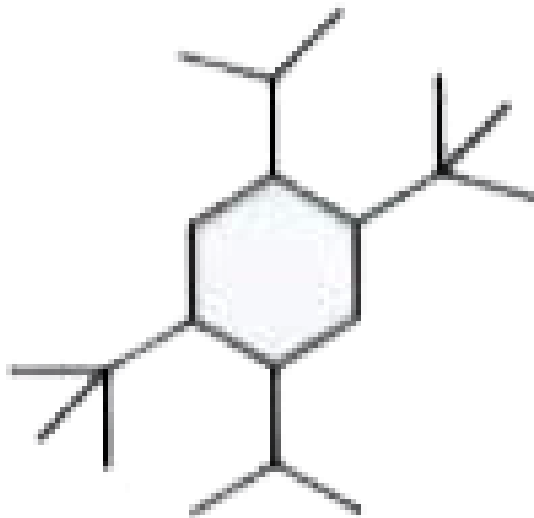
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34. Find the number of $sp^2 - sp^2$ carbon present in the given compound.



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35. Find the number of $3^\circ C$ present in the given compound.



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Practice Sheet Exercise I Level I Main

1. 0.759 g of a silver salt of a dibasic organic acid on ignition left 0.463 g metallic silver. The equivalent mass of the acid is :

A. 70

B. 108

C. 60

D. 50

Answer: A



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2. 0.75 g platinumchloride of monoacid base on ignition gave 0.245 g platinum. The molecular mass of the base is :

A. 75.0

B. 93.0

C. 100

D. 80.0

Answer: B



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3. Property to be determined Method used for determination

- | | |
|--|------------------------|
| (P) Estimation of carbon and hydrogen in an organic compound | (i) Lassaigne's method |
| (Q) Estimation of nitrogen in aniline | (ii) Carbylamine test |
| (R) Estimation of chlorine in carbon tetrachloride | (iii) Liebig's method |
| (S) detection of nitrogen, sulphur and halogens | (iv) Kjeldahl's method |

A. P-(i), Q-(ii), R-(iii), S-(iv)

B. P-(iv), Q-(iii), R-(i), S-(ii)

C. P-(ii), Q-(i), R-(iv), S-(iii)

D. P-(iii), Q-(iv), R-(ii), S-(i)

Answer: D



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4. Match the following :

- | | |
|--|----------------------------------|
| (P) Equivalent mass of an organic acid | (i) Depression in freezing point |
| (Q) Equivalent mass of an organic base | (ii) Victor Meyer's method |
| (R) Molecular mass of a volatile organic solid | (iii) Platinichloride method |
| (S) Molecular mass of a non-volatile organic solid | (iv) Silver salt method |

A. P-(iv), Q-(iii), R-(ii), S-(i)

B. P-(i), Q-(ii), R-(iii), S-(iv)

C. P-(iii), Q-(i), R-(iv), S-(ii)

D. P-(ii), Q-(iv), R-(i), S-(iii)

Answer: A



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5. If 0.02 g of a volatile compound on heating displaces 11.2 ml of dry air at STP, the molecular weight of the compound is

A. 20

B. 30

C. 40

D. 50

Answer: C



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6. 0.303 g of sample was analysed for nitrogen by Kjeldahl's method. The ammonia gas evolved was absorbed in 50 ml of 0.05 M H_2SO_4 . The excess acid required 25 ml of 0.1 M NaOH for neutralisation.

A. 11.5

B. 23

C. 12.5

D. 14.5

Answer: A



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7. Which of the following is purified by vacuum distillation

A. Ethanol

B. Glycerine

C. Benzoic acid

D. Chlorobenzene

Answer: B



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8. 0.59g of the silver salt of an organic acid (mol.wt. 210) on ignition gave 0.36 g of pure silver. The basicity of the acid is [AW of Ag = 108]

A. 1

B. 2

C. 3

D. 4

Answer: A



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9. A mixture of acetone and methanol can be separated by

- A. vacuum distillation
- B. Steam distillation
- C. Fractional distillation
- D. none of these

Answer: C



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10. In paper chromatography

- A. mobile phase is liquid and stationary phase is solid
- B. mobile phase is solid and stationary phase is liquid
- C. both phases are solids
- D. both phases are liquids

Answer: D



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11. The most satisfactory method of separating sugars from each other is:

A. fractional crystallization

B. sublimation

C. chromatography

D. Benedict solution

Answer: C



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12. Impure glycerine can be purified by

A. Steam distillation

- B. vacuum distillation
- C. simple distillation
- D. extraction with a solvent

Answer: B



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13. If 0.2 gram of an organic compound containing carbon, hydrogen and oxygen on combustion, yielded 0.147 gram carbon dioxide and 0.12 gram water. What will be the content of oxygen in the substance ?

- A. 65.29 %
- B. 73.4 %
- C. 83.23 %
- D. 89.50 %

Answer: B

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14. 0.532 g of the chloroplatinate of an organic base (mol.wt 24 D) gave 0.195 g of Pt on ignition. Then the number of nitrogen atoms per molecule of the base is

A. 1

B. 2

C. 3

D. 4

Answer: D

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15. 0.246 g of the organic compound gave 22.4cm^3 of nitrogen gas at STP as determined by Dumas method. The percent of nitrogen in the compound is

A. 11.38

B. 17.07

C. 22.76

D. 34.14

Answer: A



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Practice Sheet Exercise I Level II Advanced

1. Which can be purified by crystalization ?

A. Phenol

B. Cane sugar

C. Benzoic acid

D. Acetanilide

Answer: B



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2. In separation by fractional crystallisation method, crystallisation of which of the following compounds occurs first ?

- A. compound whose melting point is highest
- B. compound whose boiling point is highest
- C. compound whose solubility is minimum
- D. compound whose molecular weight is minimum

Answer: C



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3. Which of the following processes is most appropriate for the separation of o-nitrophenol and p-nitrophenol from their mixture

A. Fractional crystallisation

B. Chromatography

C. Steam distillation

D. sublimation

Answer: C



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4. Some organic compounds are purified by distillation at low pressure because the compounds are

A. are low boiling liquids

B. are high boiling liquids

C. are highly volatile

D. decompose at their normal boiling point

Answer: D



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5. Raw juice in sugar factories is generally concentrated by:

- A. vacuum distillation
- B. Steam distillation
- C. sublimation
- D. crystallization

Answer: A



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6. Turpentine oil can be purified by:

- A. vacuum distillation
- B. fractional distillation
- C. Steam distillation

D. simple distillation

Answer: C



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7. An organic compound X contains Y and Z impurities. Their solubilities differ in a chosen solvent. They may be separated by :

A. simple crystallization

B. fractional crystallization

C. sublimation

D. Fractional distillation

Answer: B



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8. Absolute alcohol can be prepared from rectified spirit by

- A. Fractional distillation
- B. Simple distillation
- C. keeping over CaO for few hours and then distilling
- D. Distillation under reduced pressure

Answer: C



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9. In Lassaigne's test, the reason behind the usage of sodium metal is

- A. Sodium melts easily and reacts with elements easily
- B. Sodium salts are ionic and water soluble
- C. Sodium salts are slightly soluble in water

D. Sodium forms covalent compounds with elements of organic of organic compounds

Answer: B



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10. 0.5 g of organic compound in Kjeldhal's method liberated ammonia, which neutralised 60 ml of 0.1 N H_2SO_4 solution. The percentage of nitrogen in the compound is

A. 1.68

B. 16.8

C. 33.6

D. 8.4

Answer: B



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11. In Carius method of estimation of sulphur 0.466g of organic compound gave 0.233 g of $BaSO_4$. The percentage of sulphur is

- A. 6.9
- B. 13.8
- C. 0.69
- D. 2.3

Answer: A



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12. An organic compound having C, H and S elements contains 4% sulphur. The minimum molecular weight of the compound is

- A. 800
- B. 400

C. 200

D. 600

Answer: A



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13. 0.96g chloroplatinate of a diacid base when ignited gave 0.32 g platinum. The molecular mass of the base is [AW of Pt = 195]

A. 175

B. 350

C. 87.5

D. 210

Answer: A



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14. Two organic compounds have same empirical formula but different molecular formula, they must have

- A. different percentage composition
- B. same viscosity
- C. different molecular weights
- D. same vapour density

Answer: C



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15. Identify the incorrect statement among the following ?

- A. Sublimation and crystallisation techniques are for purification of solid organic compounds
- B. Chromatography technique works on different extents of adsorption of a substances on an adsorbent surface

C. Water (B.pt $100^{\circ}C$) and another miscible liquid Z(B.pt $105^{\circ}C$)

mixture can be separated by fractional distillation.

D. Phenol (B.pt $182^{\circ}C$) and Aniline (B.pt $184^{\circ}C$) mixture can be

separated by simple distillation.

Answer: D



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16. Sodium fusion extract of an organic compound gives blood red colour with $FeSO_4/Conc. H_2SO_4$ on heating. Fresh extract of the same compound gives black precipitate when mixed with $(CH_3COO)_2Pb$ and with yellow precipitate when treated with $AgNO_3$ solution. Then the organic compound may be

A. $C_6H_{12}NCl$

B. $C_6H_{12}NI$

C. $C_6H_{12}NSI$

D. $C_6H_{12}SI$

Answer: C



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17. In sulphur estimation, 3.2 grams of an organic compound give 2.33 grams of $BaSO_4$. Then the percentage of sulphur in the organic compound is

A. 15 %

B. 10 %

C. 20 %

D. 25 %

Answer: B



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18. Number of positional isomers of the compound 2-Bromo Bicyclo [2,2,1]

Heptane(including the given one

A. 2

B. 4

C. 5

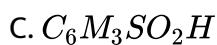
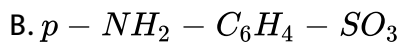
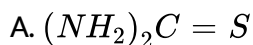
D. 3

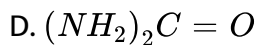
Answer: D



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19. Which of the following compounds may give blood red colouration while performing Lassaigne's test for nitrogen





Answer: A::B



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20. Diethyl ether is mostly used in solvent extraction due to the following reasons

- A. Its solvation capacity is very high
- B. Being inert, it does not react with most of the organic compounds
- C. There are two lone pairs in it, therefore, it acts as a strong nucleophile
- D. Its boiling point is low therefore, it can be easily separated by distillation

Answer: A::B::D



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21. Which of the following compounds undergoes sublimation?

A. Naphthalene

B. Camphor

C. $HgCl_2$

D. NH_4Cl

Answer: A::B::C::D



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22. Which of the following compounds can be purified by steam distillation

A. salicylaldehyde

B. Bromobenzene

C. p-hydroxybenzaldehyde

D. Aniline

Answer: A::D



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23. The 0.2 g of anhydrous organic acid gave on combustion 0.04 g of water and 0.195 g of CO_2 . The acid is a dibasic acid and 0.5 g of its silver salt leaves on ignition 0.355 g of silver.

The percentage of carbon in the compound is

A. 50

B. 52

C. 26.6

D. 90

Answer: C



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24. The 0.2 g of anhydrous organic acid gave on combustion 0.04 g of water and 0.195 g of CO_2 . The acid is a dibasic acid and 0.5 g of its silver salt leaves on ignition 0.355 g of silver.

The percentage of carbon in the compound is

- A. 5.6
- B. 2.22
- C. 4.44
- D. 10

Answer: B



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25. The 0.2 g of anhydrous organic acid gave on combustion 0.04 g of water and 0.195 g of CO_2 . The acid is a dibasic acid and 0.5 g of its silver salt leaves on ignition 0.355 g of silver.

The percentage of carbon in the compound is

A. 90

B. 100

C. 10

D. 45

Answer: D



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26. During the estimation of nitrogen in an organic compound by Kjeldhal's method, the ammonia evolved from 0.5g of the compound was absorbed in 50 ml of $0.5M H_2SO_4$. The residual acid required 60 ml of 0.5 M NaOH solution.

What volume of H_2SO_4 is used by NH_3 in the process

A. 50 ml

B. 10 ml

C. 20 ml

D. 30 ml

Answer: C



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27. During the estimation of nitrogen in an organic compound by Kjeldhal's method, the ammonia evolved from 0.5g of the compound was absorbed in 50 ml of $0.5M H_2SO_4$. The residual acid required 60 ml of 0.5 M NaOH solution.

The number of grams of NH_3 released in the process is

A. 0.4

B. 17

C. 0.34

D. 30 ml

Answer: C



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28. During the estimation of nitrogen in an organic compound by Kjeldhal's method, the ammonia evolved from 0.5g of the compound was absorbed in 50 ml of $0.5M H_2SO_4$. The residual acid required 60 ml of 0.5 M NaOH solution.

The percentage of nitrogen in the compound is

A. 2.8

B. 56

C. 18.6

D. 14

Answer: B



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29. The hetero elements in organic compound are nitrogen, halogen, sulphur and phosphorous, Nitrogen is estimated by Duma's method (or)

Kjeldahl's method. The other hetero elements are estimated using Carius method.

0.25 g of an organic compound gave 22.4 ml. of N_2 at STP by Duma's method. The percentage of Nitrogen in the compound is

- A. 15 %
- B. 28 %
- C. 11.2 %
- D. 14 %

Answer: C



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30. The hetero elements in organic compound are nitrogen, halogen, sulphur and phosphorous, Nitrogen is estimated by Duma's method (or) Kjeldahl's method. The other hetero elements are estimated using Carius method.

In the estimation of halogen by Carius method, which of the following is carried out

- A. Oxidation of compound by conc, H_2SO_4
- B. Heating of the compound with fuming nitric acid and $AgNO_3$
- C. Combustion of the compound
- D. Dissolving of compound directly into aq. $AgNO_3$

Answer: B



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31. The hetero elements in organic compound are nitrogen, halogen, sulphur and phosphorous, Nitrogen is estimated by Duma's method (or) Kjeldahl's method. The other hetero elements are estimated using Carius method.

The substance used in the estimation of phosphorous is

- A. Conc. H_2SO_4

B. fuming sulphuric acid and $MgCl_2$

C. Conc. HNO_3 . $NaOH$

D. fuming nitric acid and magnesia mixture

Answer: D



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32. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Liebig's combustion method is used for the quantitative estimation of:

A. C and H

B. Halogens

C. S and P

D. N

Answer: A



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33. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Carius method is used for the quantitative estimation of:

- A. C and H
- B. Halogens, S, and P
- C. N
- D. All

Answer: B



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34. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Dumas and Kjeldahl's methods are used for quantitative estimation of:

- A. C and H
- B. Halogens, S, and P
- C. N
- D. All

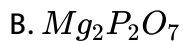
Answer: C



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35. In Carius method for the quantitative estimation of phosphorous, by using magnesia mixture, phosphorous is estimated by :

- A. $MgNH_4 \cdot PO_4$



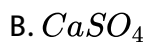
D. All

Answer: B



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36. In carius method for the quantitative estimation of sulphur, it is estimated by



Answer: C



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37. Carius is the name of

- A. A chemist
- B. A biologist
- C. A sealed capillary tube
- D. A long - necked round-bottom flask

Answer: C



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38. Kjeldahl's is the name of

- A. A scientist
- B. A round - bottom flask
- C. A sealed capillary tube
- D. A long - necked round-bottom flask

Answer: D



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39. In the quantitative estimation of phosphorous by using magnesia mixture, the formula used is :

A. percentage of $P = \frac{62}{222} \times \frac{W \times 100}{w}$

B. percentage of $P = \frac{31}{222} \times \frac{W \times 100}{w}$

C. percentage of $P = \frac{62}{222} \times \frac{w \times 100}{W}$

D. percentage of $P = \frac{31}{222} \times \frac{w \times 100}{W}$

Answer: A



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40. In the quantitative estimation of phosphorous by using ammonium molybdate, the formula used is : where W is the mass of ammonium

phospho molybdate and w is the mass of the compound.

A. percentage of $P = \frac{31}{1877} \times \frac{W \times 100}{w}$

B. percentage of $P = \frac{62}{1877} \times \frac{W \times 100}{w}$

C. percentage of $P = \frac{31}{1877} \times \frac{w \times 100}{W}$

D. percentage of $P = \frac{62}{1877} \times \frac{w \times 100}{W}$

Answer: A



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41. In the quantitative estimation of oxygen by using I_2O_5 , the formula used is :

A. percentage of $O = \frac{44}{32} \times \frac{W \times 100}{w}$

B. percentage of $O = \frac{32}{44} \times \frac{W \times 100}{w}$

C. percentage of $O = \frac{44}{32} \times \frac{w \times 100}{W}$

D. percentage of $O = \frac{32}{4} \times \frac{w \times 100}{W}$

Answer: B



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Column - I

Column - II

- | | |
|-------------------------|-----------------------------------|
| (A) Sublimation | (P) Ether + Toluene |
| 42. (B) Distillation | (Q) o-nitrophenol + p-nitrophenol |
| (C) Vacuum distillation | (R) Benzoic acid + Benzaldehyde |
| (D) Steam distillation | (S) Glycerol and aniline |



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43. Property to be determined Method used for determination

- | | |
|--|-----------------------|
| (P) Estimation of carbon and hydrogen in an organic compound | (i) Lassaigne's test |
| (Q) Estimation of nitrogen in aniline | (ii) Carbylamine test |
| (R) Estimation of chlorine in carbon tetrachloride | (iii) Liebig's test |
| (S) detection of nitrogen, sulphur and halogens | (iv) Kjeldahl's test |



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44. Match the following :

(P) Equivalent mass of an organic acid

(i) Depression in freezing point

(Q) Equivalent mass of an organic base

(ii) Victor Meyer's method

(R) Molecular mass of a volatile organic solid

(iii) Platinichloride method

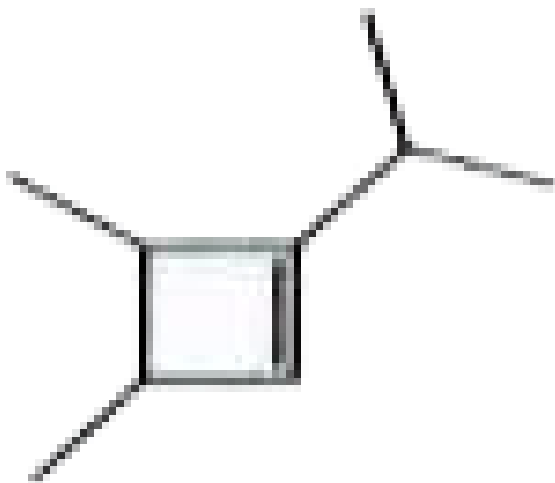
(S) Molecular mass of a non-volatile organic solid

(iv) Silver salt method



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45. Find the sum of 1° , 2° & 3° present in the given compound



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1. 2,3-dimethylhexane contains.....tertiary.....secondary and...primary carbons respectively.

A. 2,2,4

B. 2,4,3

C. 4,3,2

D. 3,2,4

Answer: A



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2. IUPAC name of Allyl chloride

A. 1-chloro-1-propene

B. 1-chloro-2-propene

C. 3-chloro-2-propene

D. 3-chloro-1-propene

Answer: D



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3. The compound in which Causes only SP^3 hybrid orbitals for bond formation is

A. $HCOOH$

B. $(NH_2)_2CO$

C. $(CH_3)_3COH$

D. CH_3CHO

Answer: C



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4. The maximum number of linear atoms in propyne molecule are

A. 3

B. 4

C. 2

D. 6

Answer: B



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5. The IUPAC name of $CH_2 = C \begin{array}{c} | \\ CH - CH_3 \\ | \\ CH_3 \end{array} - CH_2 - CH_3$ is

A. 2-Ethyl-3-methylbut-1-ene

B. 2-Isopropylbutene-2

C. 2-Methyl-3-ethylbutene-3

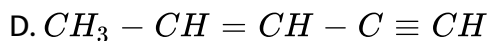
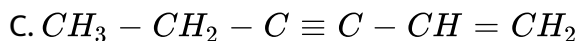
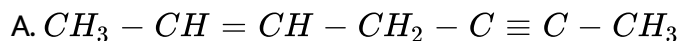
D. Ethyl isopropylethane

Answer: A



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6. Which compound given below has sp^3 , sp^2 and sp orbitals in the ratio of 6:3:2



Answer: A



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7. How many “methyl groups” are present in 2,3-dimethyl-4-ethyl heptane

A. 2

B. 8

C. 4

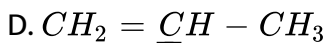
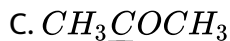
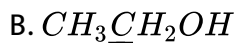
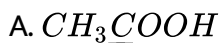
D. 5

Answer: D



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8. In which of the following species is the underlined carbon having sp^3 hybridisation ?



Answer: B



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9. Give the IUPAC name of



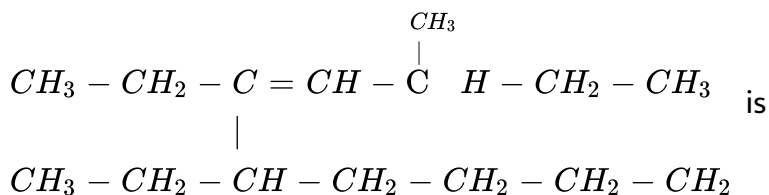
- A. iso prene
- B. chloroprene
- C. 2-methyl-1,3-butadiene
- D. 2-chloro-1,3-butadiene

Answer: D



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10. Correct IUPAC name of



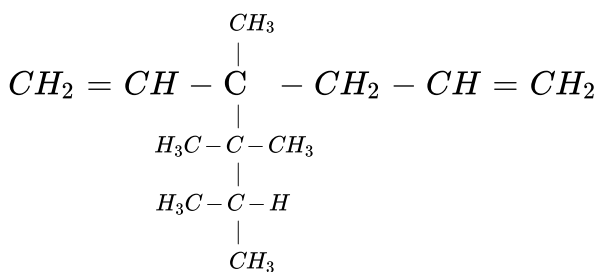
- A. 5,6-Diethyl-3-methyl dec-4-ene
- B. 5,6-Diethyl-8-methyl dec-6-ene
- C. 6-Butyl-5-ethyl-3-methyl oct-4-ene
- D. 2,4,5-triethyl-3-nonene

Answer: A



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11. IUPAC name of



A. 3-(1,1,2-trimethyl) propyl-1,5 hexadiene

B. 3-methyl-1-3-(1,1,2-trimethyl propyl)-1,5 hexadiene

C. 4-methyl-4-vinyl-5,5,6-trimethyl hept-1-ene

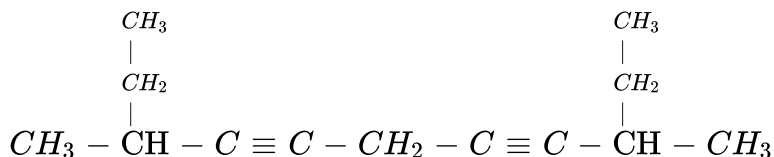
D. 4,5,5,6-tetra methyl-4-vinyl hept-1-ene

Answer: B



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12. The correct IUPAC name of



A. 2,8-Diethyl-3,6-nonadiyne

B. 1,5-secondary butyl-1,4-pentadiyne

C. 1,8-dimethyl-4,7-undecadiyne

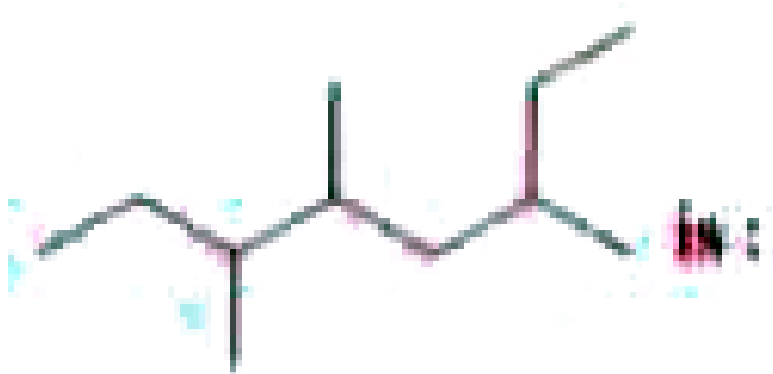
D. 3,9-dimethyl-4,7-undecadiyne

Answer: D



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13. The IUPAC name for



is :

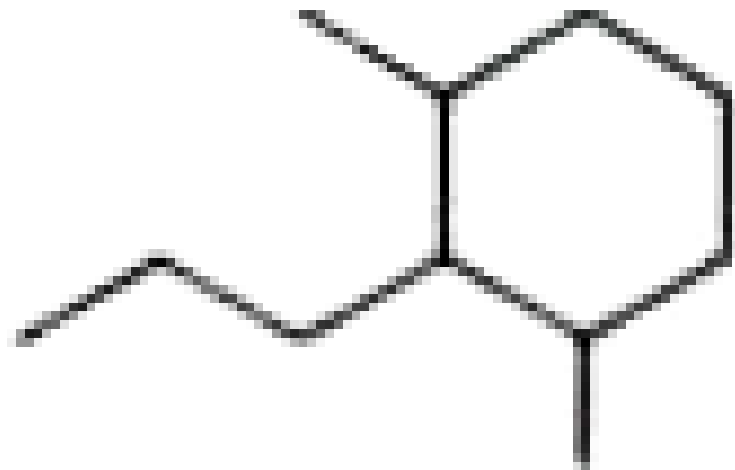
- A. 6-Ethyl-3,4-dimethylheptane
- B. 2-Ethyl-4,5-dimethylheptane
- C. 3,4,6-Trimethyloctane
- D. 3,5,6-Trimethyloctane

Answer: C



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14. An IUPAC name for



is :

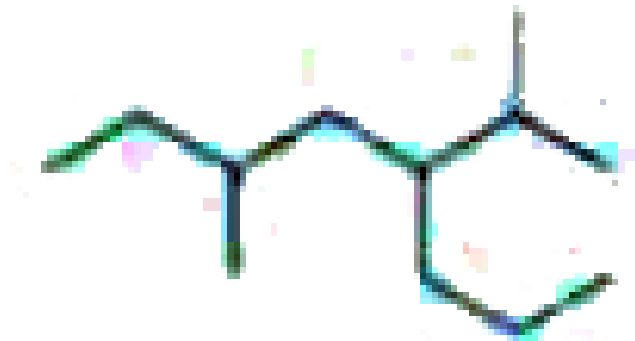
- A. a. 5-Methy 1-4-(1-methy 1 propyl) hexane
- B. b. 2-Methy 1-3-(1-methy 1 propyl) hexane
- C. c. 2-Methyl 1-3-(2-methy 1 propyl)hexane
- D. d. 1-propyl-(2,6)-dimethyl cyclohexane

Answer: D



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15. A correct IUPAC name for the following compound is:



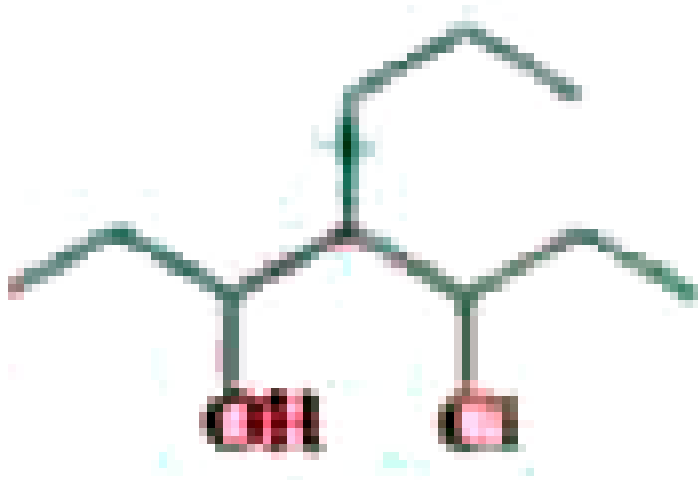
- A. 2,5-Dimethyl 1-3-propyl heptane
- B. 3,6-Dimethyl 1-5-propyl heptane
- C. 6-Methyl 1-4-(1-methyl ethyl)octane
- D. 3-Methyl 1-5-(1-methyl ethyl)octane

Answer: D



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1. A correct IUPAC name for the following compound is :



A. 4-propyl-5-chloro-3-heptanol

B. 4-propyl-3-chloro-5-heptanol

C. 4-(1-chloropropyl)-3-heptanol

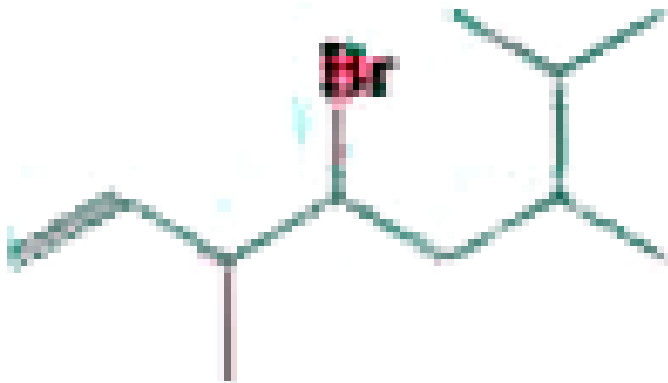
D. 5-chloro-4-propyl-3-heptanol

Answer: D



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2. A correct IUPAC name for the following compound is :



- A. a. 3,6,7-trimethyl-4-bromo-1-octene
- B. b. 4-bromo-3-methyl-6-isopropyl-1-heptene
- C. c. 4-bromo-3,6,7-trimethyl-1-octene
- D. d. 4-bromo-6-isopropyl-3-methyl-1-heptene

Answer: C



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3. A IUPAC name for the group CH_3CHCH_2 - is :



A. Isopentyl

B. Isoamyl

C. 2-Ethylpropyl

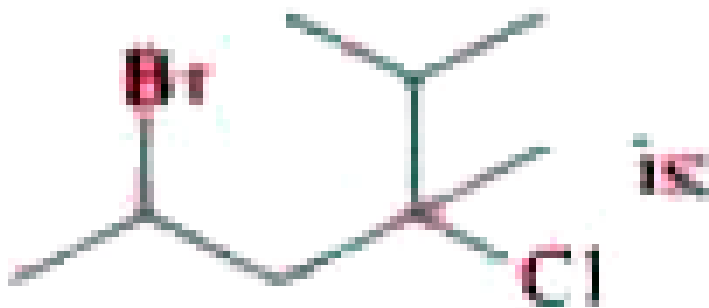
D. 2-Methylbutyl

Answer: D



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4. The correct IUPAC name for



is :

A. 2-Bromo-4-chloro-4-isopropylpentane

B. 2-Bromo-2-chloro-2-isopropylpentane

C. 5-Bromo-3-chloro-2,3-dimethylhexane

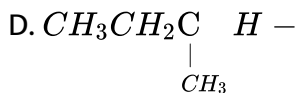
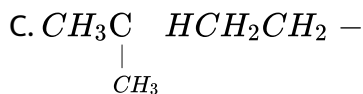
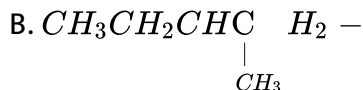
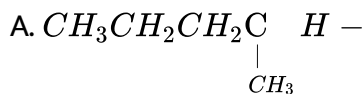
D. 2-Bromo-4-chloro-4,5-dimethylhexane

Answer: C



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5. Isopentyl is the common name for which alkyl group?

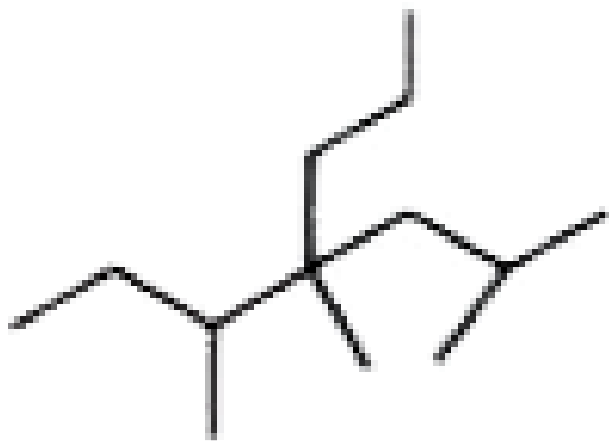


Answer: C



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6. An IUPAC name for the following compound is :



A. a. 4-Isobutyl-3,4-dimethylheptane

B. b. 4-sec-Butyl-2,4-dimethylheptane

C. c. 2,4,5-Trimethyl-4-propylheptane

D. d. 3,4,6-Trimethyl-4-propylheptane

Answer: C

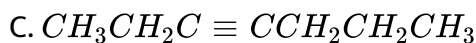
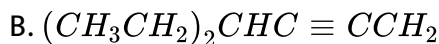
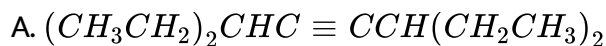


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7. Draw the structure of 4-cyclopropyl-4-ethyl-2-heptene

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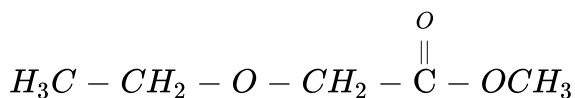
8. Which molecule represents 4-ethyl-2-hexyne ?



Answer: B

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9. The functional group(s) present in



A. Ether, Ketone

B. Ketone

C. Ester, Ether

D. Ether, Ether

Answer: C



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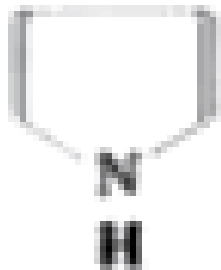
10. Which of the following is called non benzonoid molecule / ion



A.



B.



C.

D. All the above

Answer: D



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11. The number of isomeric alkyl group possible for C_4H_9- is

A. Four

B. Three

C. Two

D. Five

Answer: A



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12. Which of the following statements is/are correct?

A. $R - \overset{\overset{O}{\parallel}}{C} - O - \overset{\overset{O}{\parallel}}{C} - R$ is an unsaturated compound.

B. Neohydrocarbons contain a $3^\circ C$ atom

C. The IUPAC name of isopropyl alcohol is propan-2-ol.

D. The IUPAC name of (CH_3CN) is ethanenitrile.

Answer: C::D



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13. Which of the following statements is/are correct ?

A. Methane was named as fire damp as it forms explosive mixture with air

- B. Primary suffixes are added the root word to show saturation or unsaturation in a C atom.
- C. The IUPAC name of Valeric acid is pentanoic acid.
- D. The common name of hexanoic acid is caproic acid.

Answer: A::B::C::D



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14. Which of the following statements is/are correct ?

- A. The IUPAC name of amyl alcohol is pentanol.
- B. The IUPAC name of isoamyl alcohol is 3-methyl butanol.
- C. wood spiric is methanol.
- D. methyl alcohol is also called carbinol.

Answer: A::B::C::D



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15. Which of the following statements is/are correct ?

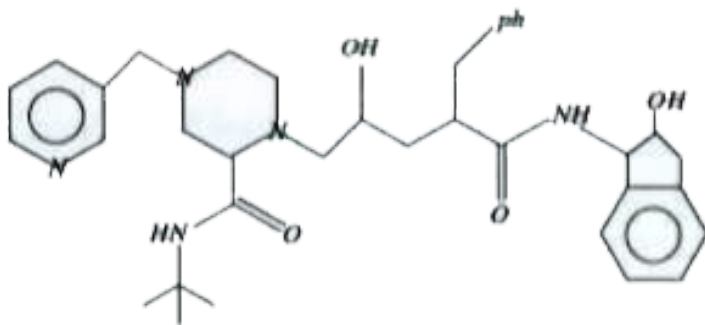
- A. The trivial names of organic compounds are called common names
- B. The systematic names of organic compounds are obtained from the IUPAC system
- C. The systematic names of alkanes are based on the number of C atom in the longest continuous chain of C atoms
- D. The maximum number of functional groups must be included in the C atom chain selected even if it does not satisfy the longest chain rule.

Answer: A::B::C::D



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16. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of crixivan is given below:



How many 2° alcohol groups are present in the above compound?

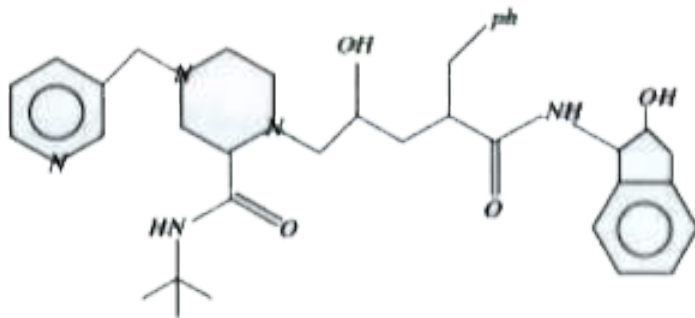
- A. Zero
- B. 1
- C. 2
- D. 3

Answer: C



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17. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of crixivan is given below:



How many amide groups are present in the compound?

- A. Zero
- B. 1
- C. 2
- D. 3

Answer: C



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18. Crixivan, a drug produced by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of crixivan is given below : How many 3° amine groups are present in the compound ?

A. Zero

B. 1

C. 2

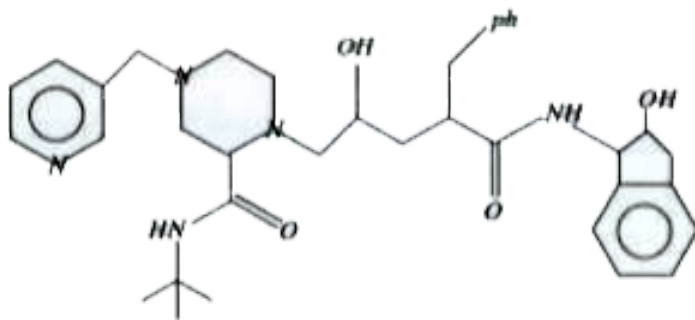
D. 3

Answer: C



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19. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of crixivan is given below:



How many 2° amine groups are present in the compound?

A. Zero

B. 1

C. 2

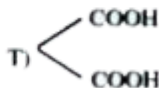
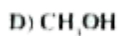
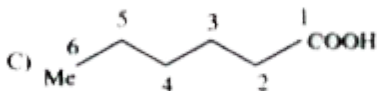
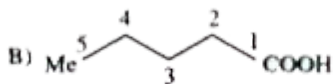
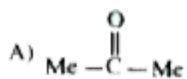
D. 3

Answer: A

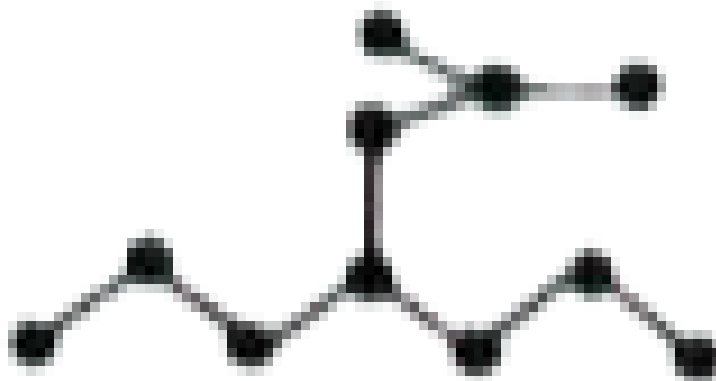


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20. Match the following columns



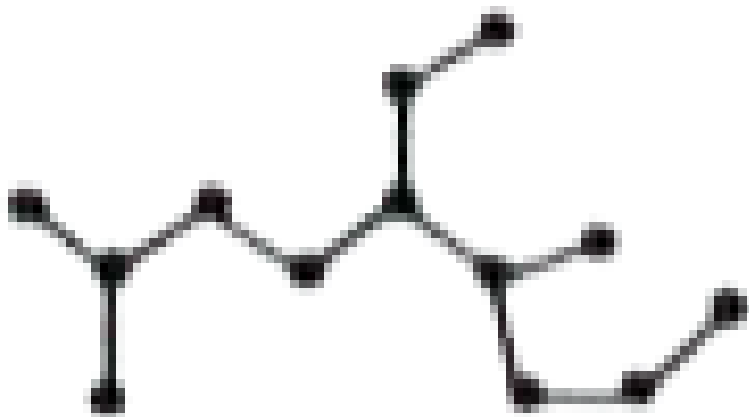
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21. _____ , How many 2° carbon present in above compound ?



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22. _____, How many methyl ($-CH_3$) group are present in given alkane ?



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23. How many $C - C\sigma -$ bonds are present in the given compound ?



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Additional Practice Exercise Level I Main

1. Which of the following is not correctly matched :

A. Lactic acid $CH_3 - C \begin{array}{c} H \\ | \\ OH \end{array} - COOH$



B. Tartaric acid



C. Pivaldehyde $CH_3C(CH_3)_2CHO$

D. Iso octane $CH_3 - C \begin{array}{c} CH_3 \\ | \\ CH_3 \end{array} - CH_2 - C \begin{array}{c} H \\ | \\ CH_3 \end{array} - CH_3$

Answer: D



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2. What is the IUPAC name of



A. 3-Ethyl-5-methyl-1-n-propylbenzene

B. 3-Ethyl-5-propyltoluene

C. 3-Ethyl-1-methyl-5-n-propylbenzene

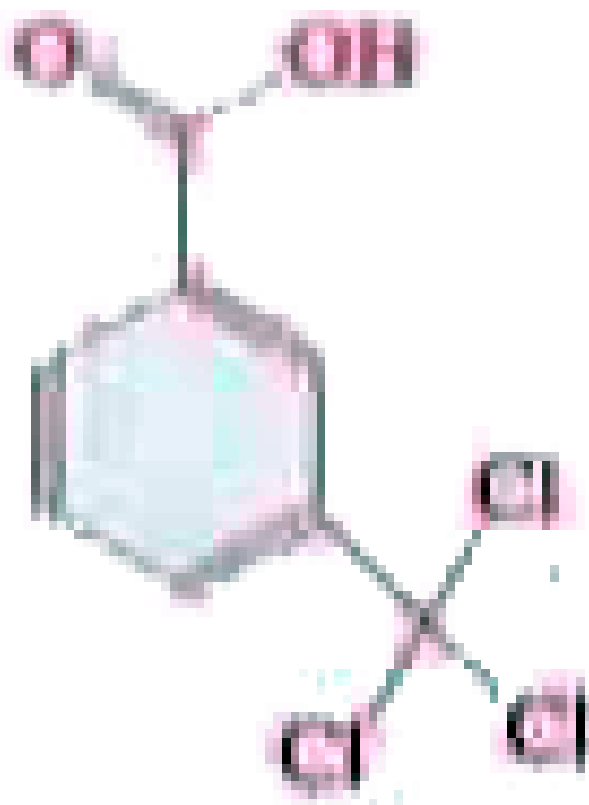
D. 1-Ethyl-3-methyl-5-n-propylbenzene

Answer: D



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3. The IUPAC name of



- A. 3-trichlorobenzoic acid
- B. 3-(trichloromethyl)-benzoic acid
- C. 3-chloralbenzoic acid
- D. 3-chlorobenzoic acid

Answer: B



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4. The name of $CH_3CH(C_6H_5)CH_2\underset{\text{OH}}{\underset{|}{C}} - CH_2CH_3$ is

A. 1-ethyl-3-phenyl-1-butenol

B. 2-phenyl-4-hexanol

C. 5-phenyl-3-hexanol

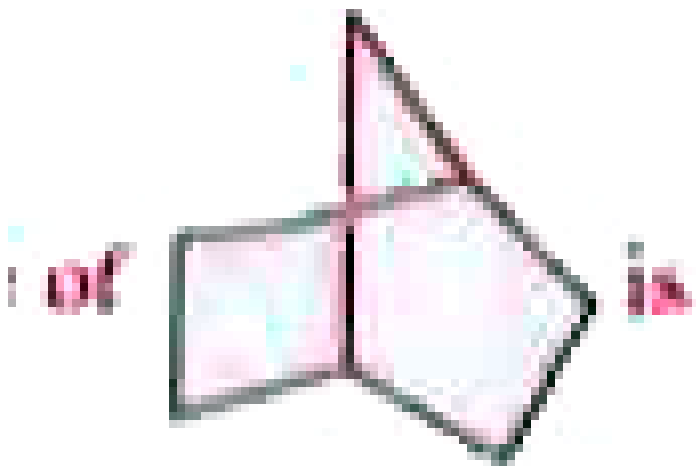
D. 5-benzyl-43-hexanol

Answer: C



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5. The name of



is

- A. bicyclo [2,2,1] heptane
- B. methylene cyclohexane
- C. ethylene cyclopentane
- D. none of these

Answer: A



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6. The IUPAC name of $CH_3CH_2 - CH_2 - \overset{\overset{CH=CH_2}{|}}{CH} - CH_2CH_2CH_3$ is

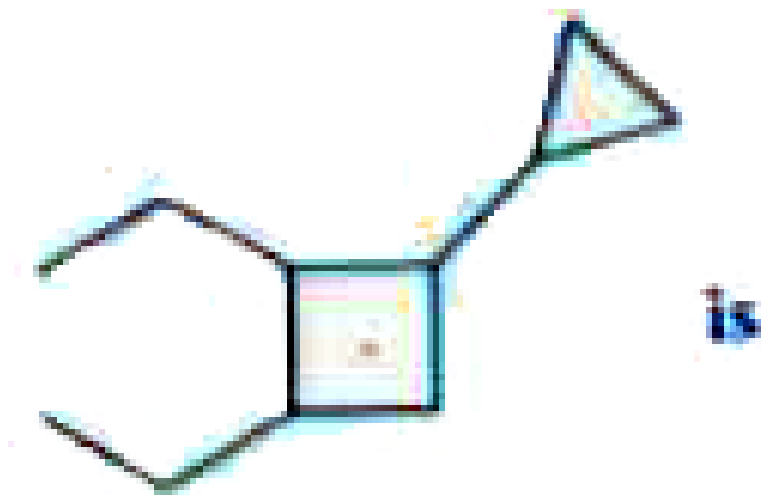
- A. 3-propyl-1-hexene
- B. 3,3-diropropyl-1-propene
- C. 4-ethenyl-heptane
- D. None of these

Answer: A



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7. The correct IUPAC name of the compound



- A. Cyclobutyl cycopropyl cyclohexane
- B. 7-cyclopropyl bicyclo [4,2,0] octane
- C. 2-cyclopropyl bicyclo [5,2,0] name
- D. 6-cyclo propyl bicyclo [2,4,0] octane

Answer: B



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8. How many isomeric structures can heptane (C_7H_{16}) have?

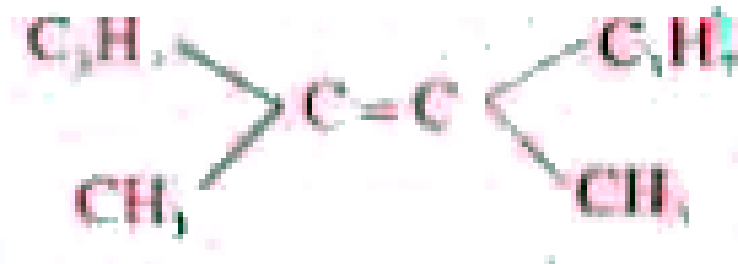
- A. Five
- B. Six
- C. Eight
- D. Nine

Answer: D



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9. IUPAC name of the compound



- A. 4,5-dimethyloct-4-ene

- B. 2,3-dipropylbut-2-ene
- C. 4-methyl-5-propylhex-4-ene
- D. 2-propyl,3-methyl-2-hexene

Answer: A



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10.



IUPAC

name of this compound is

- A. 9-Borabicyclo [3.3.0] nonane
- B. 9-Borabicyclo [3.3.3] nonane
- C. 9-Borabicyclo [3.3.2] nonane
- D. 8-Borabicyclo [3.3.1] octane

Answer: C



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11. Which of the following wrong

- A. 4-methyl pentane does not exist in IUPAC nomenclature
- B. IUPAC name of Neopentyl bromide is 1-Bromo-2,2 dimethyl propane.



- C. Primary prefix is not used in IUPAC name of
- D. An industrial waste water is found to contain 8.2 % Na_3PO_4 and 12 % $MgSO_4$ by weight in solution, if percentage of ionization of Na_3PO_4 and $MgSO_4$ re 50 and 60 respectively then its normal boiling point is $101.78^\circ C [K_b \text{ of water} = 0.50 K Kg mol^{-1}]$

Answer: C



12. The IUPAC name of



is

A. 3-methylcyclohexane

B. 3-methylcyclohexene

C. 1-methylcyclohex-2-ene

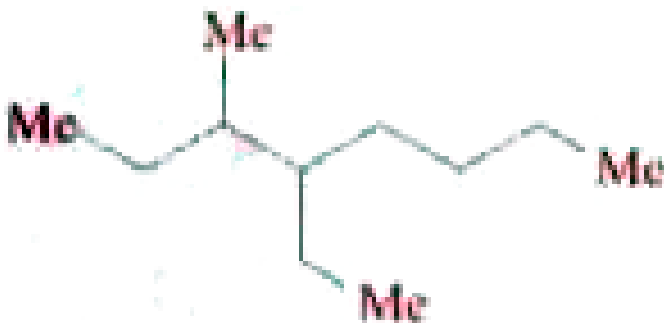
D. 1-methylcyclohex-5-ene

Answer: B



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13. Name of the compound given below is

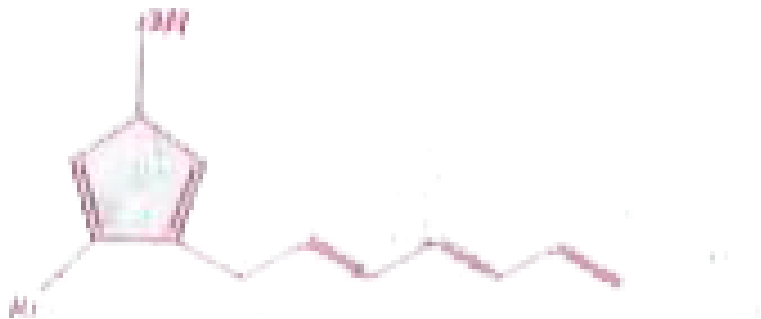


- A. 4-methyl-3-ethyloctane
- B. 4-ethyl-3-methyloctane
- C. 5-ethyl-6-methylocatane
- D. 3-isobutyl-heptane

Answer: B

[View Text Solution](#)

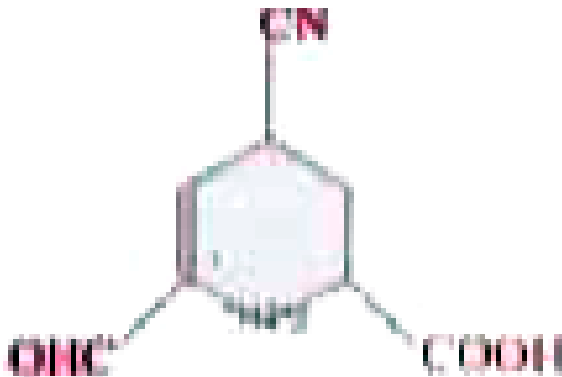
14. Correct IUPAC name of the following compound is



- A. 3-(Hepta-2,4,6-trienyl)-4-bromo cyclopenta-2,4,-dien-1-ol
- B. 7-(2-Bromo-4-hydroxy cyclopenta -1,4-dienyl) hepta-1,3,5-triene
- C. 7-(5-Bromo-3-hydroxy cyclopenta-1,4-dienyl) hepta-1,3,5-triene
- D. 3-Bromo-4-(hepta-2,4,6-trienyl) cyclopenta-2,4-dien-1-ol

Answer: D

[View Text Solution](#)



15.

- A. 3-cyano-5-formylcyclohex-4-ene-1-carboxylic acid
- B. 5-cyano-3-formylcyclohex-4-ene-1-carboxylic acid
- C. 5-cyano-3-formylcyclohex-3-ene-1-carboxylic acid
- D. 5-carboxy-3-formylcyclohex-2-ene-1-carbonitrile

Answer: C



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16. IUPAC name for the amine $CH_3 - \underset{\underset{CH_3}{|}}{N} - \overset{\overset{CH_3}{|}}{\underset{\underset{C_2H_5}{|}}{C}} - CH_2 - CH_3$ is

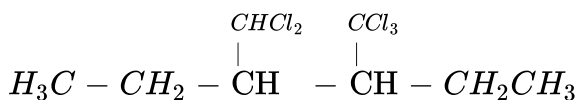
- A. 3-methyl,3-ethyl-2-N-Methylpentane
- B. 3(N, N-Triethyl)-3-aminopentane
- C. 3-N, N-Trimethyl pentanamine
- D. 3-(N,N-Dimethylamino)-3-methylpentane

Answer: D



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17. IUPAC name of the compound is



- A. 3-(Monochloro methyl)-4-(trichloro methyl)hexane
- B. 3-(Dichloro methyl)-4-(trichloro ethyl) hexane
- C. 3-(Dichloro ethyl)-4-(trichloro ethyl) hexane
- D. 3-(Dichloro methyl)-4-(trichloro methyl) hexane

Answer: D



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18. Which of the following IUPAC names are incorrect

- A. 2-methyl-2-propylhexane
- B. 2-methyl hexane
- C. 3,3-dimethylpentane
- D. 3-ethyl-2,2-dimethylpentane

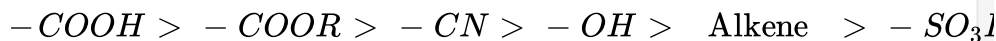
Answer: A

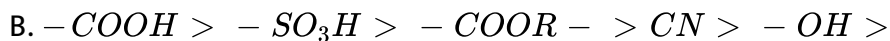


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19. Correct order of polyfunctional groups

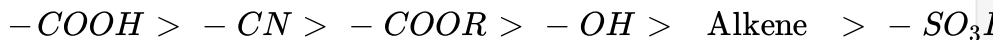
A.





Alkene

C.



Answer: B



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20. (A): Pentane and 2-methyl pentane are homologues to each other

(R): Pentane is a straight chain alkane, while 2-methyl Pentane is a branched chainalkane

A. If both (A) and (R) are correct and (R) is correct explanation for (A)

B. If both (A) and (R) are correct and (R) is not correct explanation for

(A)

C. If (A) is correct and (R) is incorrect.

D. If (A) is Incorrect and (R) is correct.

Answer: B



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21. Which of the following is correct IUPAC ?

A. 1-ethyl-3-isopropyl-5-propyl cyclo hexane

B. 1-propyl-3-isopropyl-5-ethyl cyclo hexane

C. 3-ethyl-5-isopropyl-1-propyl cyclo hexane

D. 1-isopropyl-3-ethyl-5-propyl cyclo hexane

Answer: A



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22. No. of σ - and π - bonds in acrylonitrile

A. 3π and 6σ

B. 7σ and 2π

C. 7σ and 3π

D. 2π and 6σ

Answer: A



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Additional Practice Exercise Level II Advanced

1. Which of the following statements is/are not correct ?

A. Aluminium wire is used in Beilstein test

B. Nitrogen gas is quantitatively estimated in Dumas method

C. In Kjeldahl's method, organic compound is reacted with conc,

H_2SO_4 . K_2SO_4 is also added.

D. All organic compounds contain both C and H.

Answer: B::C::D



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2. Which of the following statements is/are wrong ?

A. Sulphur is estimated by Carius method as $BaSO_4$

B. Victor Meyer's Method is used for the determination of molecular mass of a non-volatile compound.

C. Kjeldahl's method is used for all nitrogen - containing organic compounds

D. Phosphorous is estimated by Carius method as $Mg(NH_4). PO_4$

Answer: C::D



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3. Which of the following statements is/are correct ?

- A. Liebig's method is used for the quantitative estimation of both C and H.
- B. Dumas method is used for the quantitative estimation of N in all nitrogen - containing organic compounds.
- C. In Liebig's combustion method, ordinary CuO is used.
- D. Silver salt method is a chemical method for the determination of equivalent mass of organic acids.

Answer: A::B::D



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4. Which of the following statements is/are wrong ?

- A. Beilstein test is a reliable test for halogens in organics compounds.

B. In Lassaigne's test for N, Prussian blue colour is due to the formation of ferro - ferri cyanide.

C. $FeCl_3$ solution is added to the Lassaigne's extract to detect the presence of both N and S

D. Molecular mass of an acid = Equivalent mass X acidity.

Answer: A::B::C::D



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5. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Volume of O_2 used is

A. 70 ml

B. 75 ml

C. 80 ml

D. 85 ml

Answer: C



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6. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Volume of residual nitrogen is

A. 300 ml

B. 310 ml

C. 320 ml

D. 330 ml

Answer: C

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7. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Volume of CO_2 is

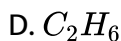
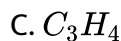
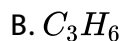
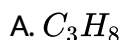
- A. 40 ml
- B. 60 ml
- C. 80 ml
- D. 100 ml

Answer: B

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8. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Formula of the hydrocarbon is



Answer: C

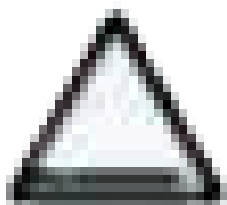
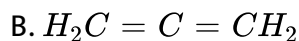
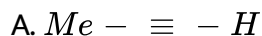


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9. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be

380 ml.

Formula of the hydrocarbon is



C.

D. All

Answer: D



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10. Match the following columns

Column-I (Compounds)

A) 1° and 2° amines

B) Ethanal and ethanol

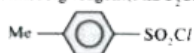
C) $(C_2H_5)_2NH$ and butanol

D) $(C_2H_5)_2C=O$ and CH_3COOH

Column-II (reagent for separation)

P) $NaSO_3$

Q) Hinsberg reagent($PhSO_2Cl$) or



R) Dil. $NaOH$ and distillation

S) Dil. H_2SO_4 and steam distillation



Additional Practice Exercise Practice Sheet Advanced

1. Which of the following statements is/are correct ?

- A. When a Lassaigne's solution is heated with dil. HNO_3 , cooled and $AgNO_3$ solution is added, a NH_4OH , indicates the presence of iodine in organic compound.
- B. When $(CH_3COO)_4 Pb$ solution is added to the acidified Lassaigne's extract of an organic compound, a black precipitate of PbS is formed.
- C. An organic compound containing N, on heating with conc. H_2SO_4 gives $(NH_4)_2SO_4$ which liberates NH_3 on treatment with excess of NaOH.

D. The molecular mass of non-volatile organic compound is determined either by Dumas method or by Victor Meyer's method.

Answer: B::C



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2. Which of the following statements is/are wrong ?

A. The gas displaced in Victor Meyer's method is air

B. The simplest formula that shows the ratio of the atoms of various elements present in the molecule is called the molecular formula

C. Estimation of oxygen in an organic compound is also made by Lunge's method.

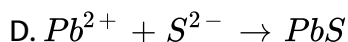
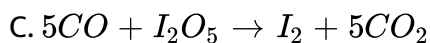
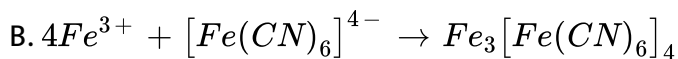
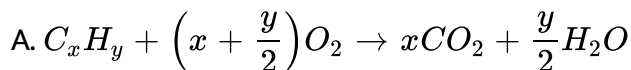
D. An organic monoacidic base B on reaction with H_2PtCl_6 forms an insoluble compound $B_2H_2PtCl_6$.

Answer: B



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3. Which of the following reactions is/are correct ?

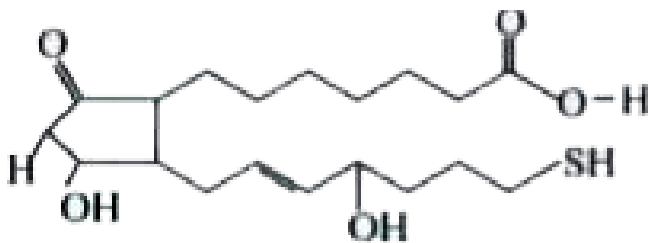


Answer: C::D



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4.



How many types of functional groups are present in given compound.



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Lecture Sheet Exercise I Straight Objective Type Questions

1. The purity of an organic solid is checked by its

- A. Sharp M.P
- B. Mixed M.P
- C. Ability to sublime
- D. Tendency to dissolve in an organic solvent

Answer: A



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2. Naphthalene is a volatile solid. It is purified by

- A. Crystallisation

B. Distillation

C. Steam distillation

D. Sublimation

Answer: D



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3. A mixture of o-nitrophenol and p-nitrophenol can best be separated by

A. Simple distillation

B. Steam distillation

C. Decantation

D. Fractional distillation

Answer: B



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4. A mixture of two miscible liquids can be separated by simple distillation, when they

- A. they have low B.P.s
- B. they have close B.P.s with each other
- C. they have large difference in the B.P.s
- D. they do not form azeotropic mixture.

Answer: C



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5. In Lassaigne's test, the organic compound is fused with sodium metal as to

- A. hydrolyse the compound
- B. forms a sodium derivative

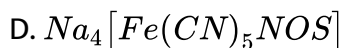
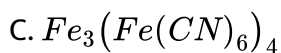
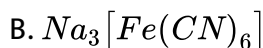
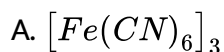
- C. covert nitrogen, sulphur or halogens if present into soluble ionic sodium compounds
- D. burn the compound

Answer: C



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6. The prussian blue colour obtained during the test for nitrogen by Lassaigues test is due to the formation of



Answer: A



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7. When N and S both are present in an organic compound, the sodium fusion extract with $FeCl_3$ gives

- A. Green colour
- B. Blue colour
- C. Yellow colour
- D. Red colour

Answer: D



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8. The sodium fusion extract of an organic compound on acidification with acetic and addition of lead acetate solution gives a black precipitate. The organic compound contains :

- A. Nitrogen

B. Halogen

C. Sulphur

D. Phosphorus

Answer: C



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9. During the test for halogens, sodium extract is first boiled with nitric acid as to

A. Decompose NaCN and Na_2S

B. Make silver halides insoluble

C. Increase the solubility of AgNO_3

D. dissolve AgCN

Answer: A



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10. Copper wire test for halogens is known as

- A. Liebig's test
- B. Lassaigne's test
- C. Fusion test
- D. Beilstein's test

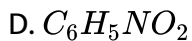
Answer: D



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11. In which of the following compounds, nitrogen cannot be tested by Lassaigne's test?

- A. $C_6H_5NH_2$
- B. NH_2NH_2
- C. CH_3CONH_2



Answer: B



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12. A compound which does not give a positive test in Lassaigne's test for nitrogen is

A. Urea

B. Hydrazine

C. Azobenzene

D. Phenyl hydrazine

Answer: B



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13. In the Duma's method for the estimation of nitrogen in an organic compound, nitrogen is determined in the form of

- A. Gaseous nitrogen
- B. Gaseous ammonia
- C. Ammonium Sulphate
- D. Sodium Cyanide

Answer: A



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14. In the estimation of sulphur in an organic compound, fuming nitric acid is used to convert sulphur into :

- A. SO_2
- B. H_2S
- C. H_2SO_3

D. H_2SO_4

Answer: D



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15. In the estimation of nitrogen by Duma's method 1.18g of an organic compound gave 224 ml of N_2 at STP. The percentage of nitrogen in the compound is

A. 20

B. 11.8

C. 47.5

D. 23.7

Answer: D



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16. In organic compounds, phosphorus is estimated as:

A. Magnesium pyrophosphate

B. Magnesium phosphate

C. H_3PO_4

D. P_2O_5

Answer: A



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17. Kjeldahl's method cannot be used for the estimation of nitrogen in

A. Pyridine

B. Nitro compounds

C. Azo compounds

D. All the three above

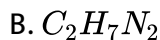
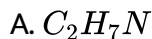
Answer: D



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18. An organic compound contains

$C = 40\%$, $H = 13.33\%$ and $N = 46.67\%$. Its empirical formula is



Answer: C



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19. The blood red colour in the combination test of nitrogen and sulphur in organic compound is due to the formation of

- A. Ferric thiocyanate
- B. Ferric acetate
- C. Ferrous sulpho cyanide
- D. Ferric cyanide

Answer: A



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20. The violet colour obtained during the test of sulphur Lassaing's test is due to the formation of

- A. $Na_2[Fe(CN)_5S]$
- B. $Na_2[Fe(CN)_2NO]$
- C. $Na_2[Fe(CN)_6]$
- D. $Na_4[Fe(CN)_5NOS]$

Answer: D

21. Which of the following compounds gives blood red colouration when its Lassaigne's extract is treated with alkali and ferric chloride ?

- A. Phenyl hydrazine
- B. Diphenyl sulphide
- C. Thiourea
- D. Benzamide

Answer: C

22. An organic compound which produces a bluish green coloured flame on heating in presence of copper is

- A. Chlorobenzene

B. Benzaldehyde

C. Aniline

D. Benzamide

Answer: A



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23. Fractional crystallization is carried out to separate

A. Organic solids mixed with inorganic solids

B. Organic solids highly soluble in water

C. Organic solids having small difference in their solubilities in a suitable solvent

D. Organic solids having great difference in their solubilities in a suitable solvent

Answer: C



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24. Mixture of nitrobenzene and aniline can be separated by

- A. Distillation
- B. Crystallisation
- C. Steam distillation
- D. Both (a) and (c)

Answer: C



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25. Two substances when separated on the basis of partition coefficient between two liquid phases, the technique is known as

- A. Column chromatography
- B. Paper chromatography

C. GLC

D. TLC

Answer: B



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26. Absolute alcohol can be prepared from rectified spirit by

A. Fractional distillation

B. Steam distillation

C. Azeotropic distillation

D. Vacuum distillation

Answer: C



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27. The ammonia evolved by the treatment of 0.30 g of an organic compound for the estimation of nitrogen was passed in 100 ml of 0.1 M sulphuric acid. The excess of acid required 20 mL of 0.5 M solution hydroxide solution for complete neutralization. The organic compound is

- A. acetamide
- B. benzamide
- C. urea
- D. thourea

Answer: C



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28. 28 mg of an organic compound containing nitrogen was digested according to Kjeldahl's method and the evolved ammonia was absorbed in 20 mL of 0.1 M HCl solution. The excess of the acid required 15 mL of 0.1 M

NaOH solution for complete neutralization. Then the percentage of 'N' is the compound is

A. 50

B. 30

C. 25

D. 40

Answer: C



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Lecture Sheet Exercise I More Than One Correct Answer Type Questions

1. Benzene and aniline are liquids. Their mixture can be separated by

A. dil - NaOH

B. dil - HCl

C. distillation

D. diethyl ether

Answer: B::C



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2. Which of the following methods are generally used for purification of organic liquids

A. Steam distillation

B. Simple distillation

C. Fractional distillation

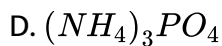
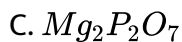
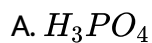
D. Vacuum distillation

Answer: A::B::C::D



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3. Which of the following are formed in the process of estimation of phosphorus



Answer: A::B::C



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4. Kjeldhal.s method cannot be used for the estimation of nitrogen in

A. Nitrobenzene

B. Pyridine

C. Azobenzene

D. Acetanilide

Answer: A::B::C



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Lecture Sheet Exercise I Linked Comprehension Type Questions

1. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

Which of the following is not applicable to Lassaigne's test

- A. The nitrogen, halogens and sulphur are converted into inorganic salts
- B. It can be used for the detection of hydrogen in the organic compound

C. During fusion of the organic compound with Sodium,

Na_2S , $NaCN$ and NaX are formed

D. It is possible to differentiate between halogens

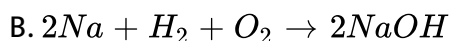
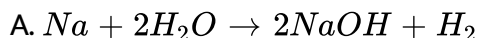
Answer: B

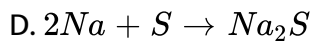
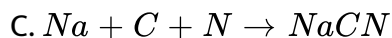


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2. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

In the process of testing elements in Lassaigne's test, which of the following reactions do not occur.





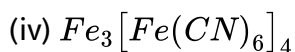
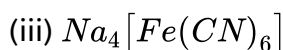
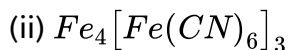
Answer: B



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3. Nitrogen, sulphur and halogens are tested from the sodium fusion extract of the organic compound which is commonly known as Lassaigne's extract. For preparing Lassaigne's extract, a small quantity of the organic compound is fused with sodium metal in a fusion tube. The red tube is broken in distilled water, boiled and filtered. This filtrate is known as Lassaigne's extract or sodium fusion extract.

During testing of nitrogen in organic compound by Lassaigne's test, which of the following compounds are formed.



- A. only (i)
- B. both i and (iii)
- C. only i, ii, iii
- D. only ii

Answer: C



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4. Steam distillation is used to purify a compound which is steam volatile and insoluble in water. The impurities should not be steam volatile. It is based on the principle that liquid will boil when partial pressure $p = p_1 + p_2$.

It reduces the boiling point of liquid.

$$\frac{\text{Weight of water distilled}}{\text{Wt of substance distilled}} = \frac{\text{M.wt of water} \times \text{V.P. of steam}}{\text{M.Wt of substance} \times \text{V.P. of aniline}}$$

Isolation of essential oils from flowers etc is done by

- A. steam distillation
- B. Distillation

C. fractional distillation

D. Distillation under reduced pressure

Answer: A



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5. Steam distillation is used to purify a compound which is steam volatile and insoluble in water. The impurities should not be steam volatile. It is based on the principle that liquid will boil when partial pressure $p = p_1 + p_2$. It reduces the boiling point of liquid.

$$\frac{\text{Weight of water distilled}}{\text{Wt of substance distilled}} = \frac{\text{M.wt of water} \times \text{V.P. of steam}}{\text{M.Wt of substance} \times \text{V.P. of aniline}}$$

Which of the following is steam volatile

A. o-nitrophenol

B. p-nitrophenol

C. p-hydroxy benzaldehyde

D. Ethanol

Answer: A



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6. Steam distillation is used to purify a compound which is steam volatile and insoluble in water. The impurities should not be steam volatile. It is based on the principle that liquid will boil when partial pressure $p = p_1 + p_2$. It reduces the boiling point of liquid.

$$\frac{\text{Weight of water distilled}}{\text{Wt of substance distilled}} = \frac{\text{M.wt of water} \times \text{V.P. of steam}}{\text{M.Wt of substance} \times \text{V.P. of aniline}}$$

Calculate weight of aniline distilled if weight of water distilled is 100g

when $P_{\text{organic compound}} = 100\text{mm}$ and $P_{H_2O} = 200\text{mm}$

A. 250g

B. 258g

C. 100g

D. 25.8g

Answer: B

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7. Lassaigne's test is used for detection of elements N, S, X and P. The sodium fused extract is tested for these elements with appropriate reagents. The observation made in to identify the element present in the organic compound.

The sodium fusion extrat is treated with $FeSO_4$, followed by H_2SO_4 , gave blue colour. The element present in the compound is

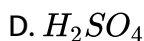
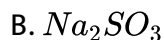
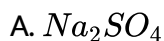
- A. sulphur
- B. nitrogen
- C. chlorine
- D. phosphorus

Answer: B

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8. Lassaigne's test is used for detection of elements N, S, X and P. The sodium fused extract is tested for these elements with appropriate reagents. The observation made in to identify the element present in the organic compound.

Sulphur is organic compound on fusion with metallic sodium will be converted into



Answer: C



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9. Lassaigne's test is used for detection of elements N, S, X and P. The sodium fused extract is tested for these elements with appropriate

reagents. The observation made in to identify the element present in the organic compound.

The sodium fusion of extract of an organic compound containing S, N on treatment $FeCl_3$ solution gives a coloured solution. The colour of the solution is

- A. blue
- B. green
- C. yellow
- D. blood test

Answer: D



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Lecture Sheet Exercise I Matrix Matching Type Questions

1. Match the following columns

Column-I

- A) glycerol
- B) o-nitrophenol
- C) Anthracene
- D) Halogens

Column-II

- P) Steam distillation
- Q) Beilstein's test
- R) Vacuum distillation
- S) Sublimation

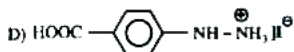
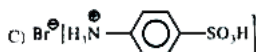
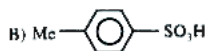
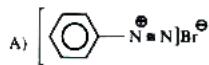


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2. Match the following columns

COLUMN-I

(Compound)



COLUMN-II

(Test)

P) Sodium fusion extract of the compound gives Prussian blue colour with FeSO_4

Q) Sodium fusion extract of the compound gives blood red colour with FeSO_4

R) Lassaigne's extract (L.E.) in CS_2 and Cl_2 water gives orange colour

S) L.E. with $[\text{Fe}(\text{CN})_6, \text{NO}]^{2-}$



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3. Match the following columns

COLUMN-I

(Methods of separation)

- A) Separated by treatment with dil. NaOH
- B) Extraction with dil. HCl, a compound
- C) Separated by NaHCO_3 solution, a
- D) Separated by conc. H_2SO_4 , which dissolves a compound and reconverted from solution by dilution with H_2O

COLUMN-II

(Compounds)

- P) Toluene and aniline
- Q) Toluene and phenol passes into the aqueous layer in the form of hydrochloride salt and recovered by neutralisation
- R) Diethyl ether and chlorobenzene compound forms salt and is recovered after acidification
- S) O - Cresol and benzoic acid



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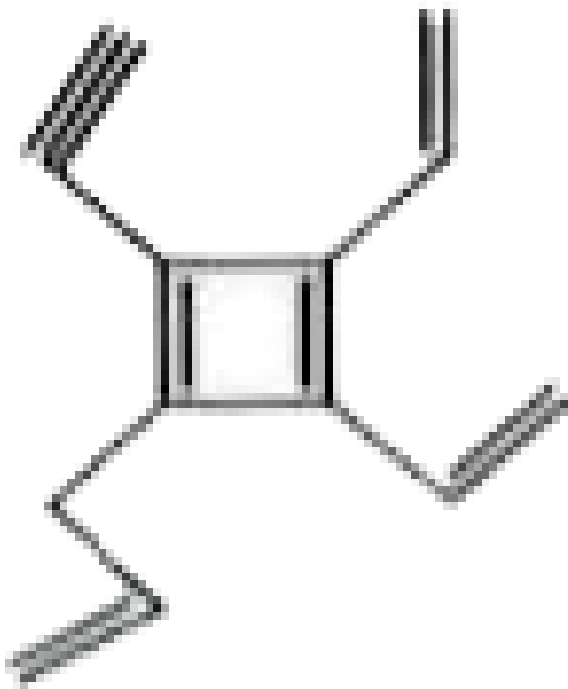
Lecture Sheet Exercise I Integer Type Questions

1. Find the number of primary hydrogens of the following compound



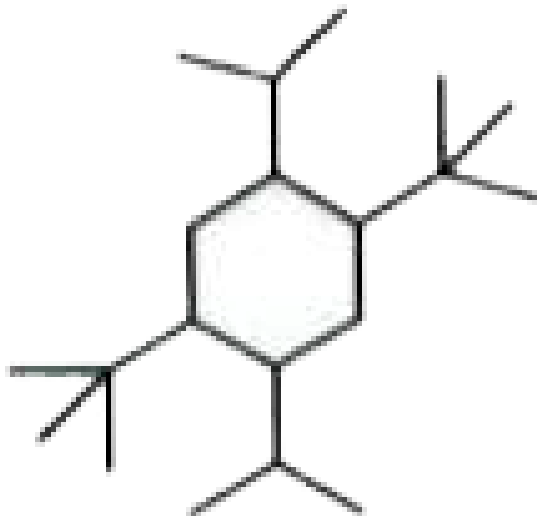
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2. Find the number of $sp^2 - sp^2$ carbons present in the given compound



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3. Find the number of $3^\circ C$ present in the given compound



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Lecture Sheet Exercise II Straight Objective Type Questions

1. In which of the following all carbon atoms are of same hybridisation

A. 1,3-Butadiene

B. Hexane

C. Acetylene

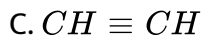
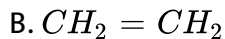
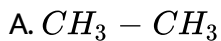
D. All the above

Answer: D



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2. In which of the following the bond energy between carbon atoms is highest



Answer: C



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3. Which of the following types of carbon atoms possess highest electronegativity



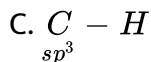
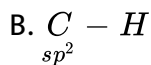
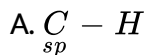
D. all have equal E.N

Answer: C



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4. The highest bond energy is for



D. all have equal energy

Answer: A



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5. The number of atoms collinear in $H_3C - C \equiv C - C \equiv C - CH_3$ is

- A. four
- B. six
- C. ten
- D. eight

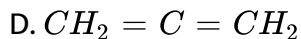
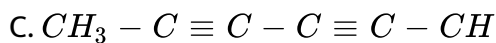
Answer: B



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6. Which of the following molecules is both planar and linear

- A. $CH_2 = CH - CH = CH_2$

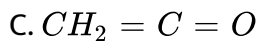
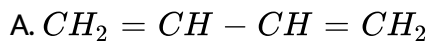


Answer: B



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7. Which of the following is planar in all its conformation



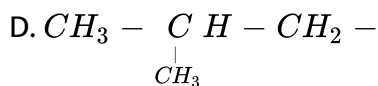
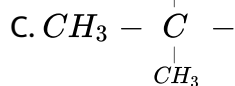
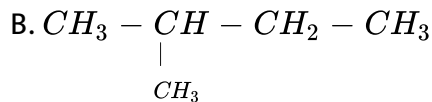
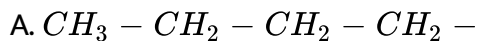
D. both (b) and (c)

Answer: D



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8. Secondary butyl group is



Answer: B



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9. The correct IUPAC name of $CH_3 - CH_2 - CH(CH_3) - CH(C_2H_5)_2$ is

A. 4-Ethyl -3-methyl hexane

B. 3-Ethyl-4-methyl hexane

C. 4-Methyl-3-ethyl hexane

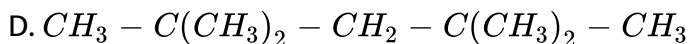
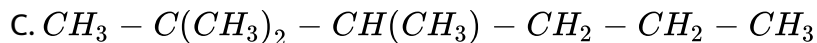
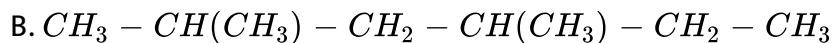
D. 2,4, -Diethyl pentane

Answer: B



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10. Which of the following represents 2, 2, 3-trimethyl hexane?

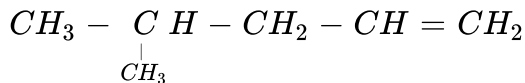


Answer: C



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11. The IUPAC name of the following compound is



A. 2-Methylpent-4-ene

B. 4-Methylpent-1-ene

C. Hexene

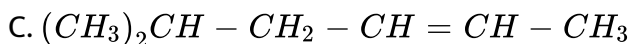
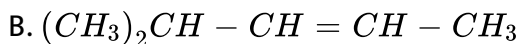
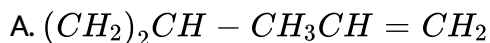
D. 3-Methylpent-1-ene

Answer: B



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12. The structure of 4-methylpentene-2 is





Answer: B



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13. The IUPAC name of $CH_3 - C \equiv C - CH(CH_3)_2$ is

- A. 4- Methyl-2-pentyne
- B. 4,4-Dimethyl -2- butyne
- C. Isopropylmethyl actylene
- D. 2-Methyl-4-pentyne

Answer: A



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14. IUPAC name of $CH_2 = CH - CH = CH_2$ is

A. 1, 2-Butadiene

B. 1,3-Butadiene

C. 1,4-Butadiene

D. Butadiene

Answer: B



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15. IUPAC name of $CH \equiv C - CH = CH_2$ is

A. 1, 2 -Propadiene

B. 1. 1-propadiene

C. 2, 2-Propadiene

D. 1, 3-Propadiene

Answer: A



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16. IUPAC name of $CH_2 = CH - CH(CH_3)_2$ is

A. 1,1-Dimethyl -2-propane

B. 3-Methyl -1- butene

C. 2-vinyl propane

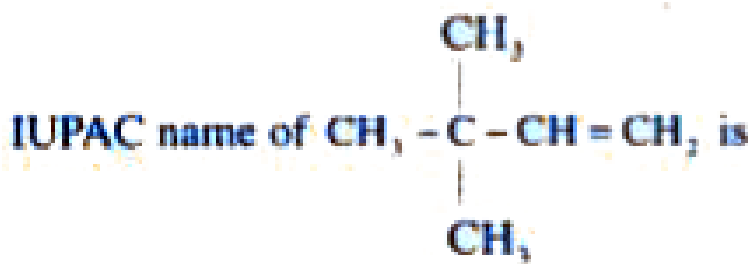
D. 1-Isopropyl ethylene

Answer: B



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17.



A. 3,3,3 - Trimethyl -1- propene

B. 1,1,1-Trimethyl -3- propene

C. 3,3 -Dimethyl -1-butene

D. 1,1-Dimethyl -3- butene

Answer: C



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18. IUPAC name of $(CH_3)_3$ is

A. 1, 1, 1-Trimethylethane

B. 2,2,2-Trimethylpropane

C. 2,2,2-Trimethylethane

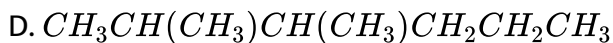
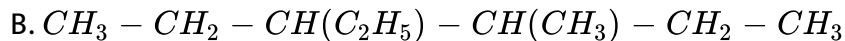
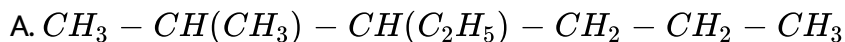
D. 2,2-Dimethylpropane

Answer: D



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19. The structural formula of 3-ethyl-2-methyl hexane is

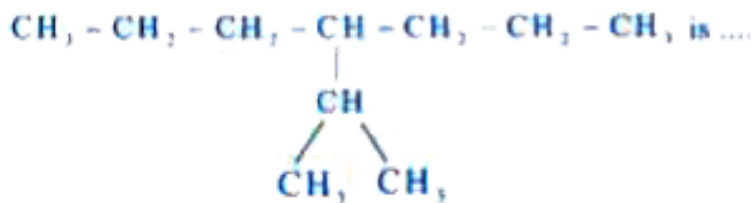


Answer: A



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20. The systematic name of the organic compound having the structure



A. 4 - Isopropyl hexane

B. 2-methyl-3-propyl hexane

C. Isodecane

D. 4-(1-Methylethyl) heptane

Answer: D



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21. IUPAC name of $CH \equiv C - CH = CH_2$ is

A. But -1-en-3- yne

B. But -1-yn-3-ene

C. But-1-yn -2-ene

D. None of the above

Answer: B



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D. 3-ethyl-2-butene

Answer: C



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24. The IUPAC name of $CH_3 - CH - \underset{\substack{| \\ CH_3}}{CH} - (CH_3)_3 - CH_3$

A. 3-methylhexane

B. 4-methylhexane

C. 5-methylheptane

D. 3-methylheptane

Answer: D



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25. IUPAC name of $(CH_3)_3CH - CHBr_2$

A. 1,1-dibromo -2-methyl propane

B. 2-methyl-3-bromo propane

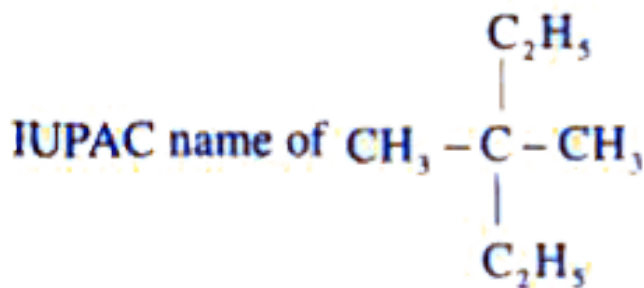
C. iso propyl Bromide

D. 3° butyl bromide

Answer: A



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26.

A. 2,2-Diethylpropane

B. 3,3-Dimethylpentane

C. 3-ethyl-3-methylbutane

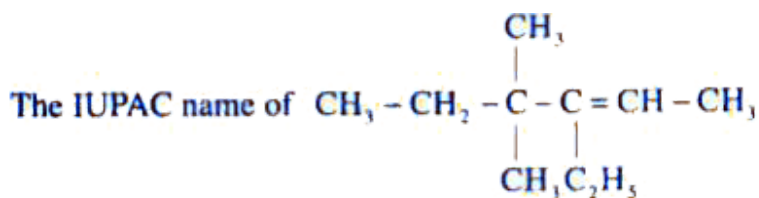
D. 3-ethyl-2-methylbutane

Answer: B



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27.



- A. 3-ethyl-4,4-dimethyl-2-hexene
- B. 4-ethyl - 3,3 - dimethyl - 4 - hexene
- C. 4-ethyl-3,3-dimethyl-2-hexene
- D. 3,4 - Diethyl - 4- methylpentane

Answer: A



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28. IUPAC name of $CH_3 - \underset{\underset{C_2H_5}{|}}{C}H - CH_2 - \underset{\underset{C_2H_5}{|}}{C}H - CH_3$

- A. 2, 4-diethylpentane
- B. 3, 5- dimethylheptane
- C. 3 - methyl 5 - ethylhexane
- D. 5 - ethyl - 3- methylhexane

Answer: B



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29. IUPAC name of $CH_3 - \underset{\underset{CH_2}{||}}{C} - CH_3 - \underset{\underset{CH_2}{||}}{C} - CH_3$

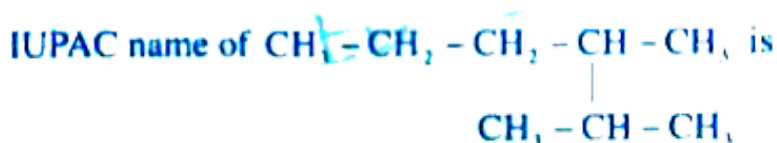
- A. 2, 4-pentadiene
- B. 2,4-dimethyl-1, 4-pentadiene
- C. 2, 4-butadine
- D. 2, 4-ethenylpentane

Answer: B



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30.



- A. 2, 3-dimethylhexane
- B. 2 - methyl - 3- propylbutane
- C. 2 - isopropylpentane
- D. none

Answer: A



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31. The IUPAC name of the compound $\text{CH}_2(\text{OH})\text{CH}(\text{NH}_2)\text{COOH}$ is

- A. 2-Amino-1-hydroxy propanoic acid
- B. 1-Hydroxy-2-amino propan-3-oic acid
- C. 2-Amino-3-hydroxy propanoic acid
- D. 1-Amino-2-hydroxy propanoic acid

Answer: C



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32. The IUPAC name of $CH_3CH_2OCH_2\overset{\overset{O}{||}}{C} - H$ is

- A. Formyl methyl ethyl ether
- B. Ethyl aldo methyl ether
- C. 2-Ethoxy formate
- D. 2-Ethoxy ethanal

Answer: D



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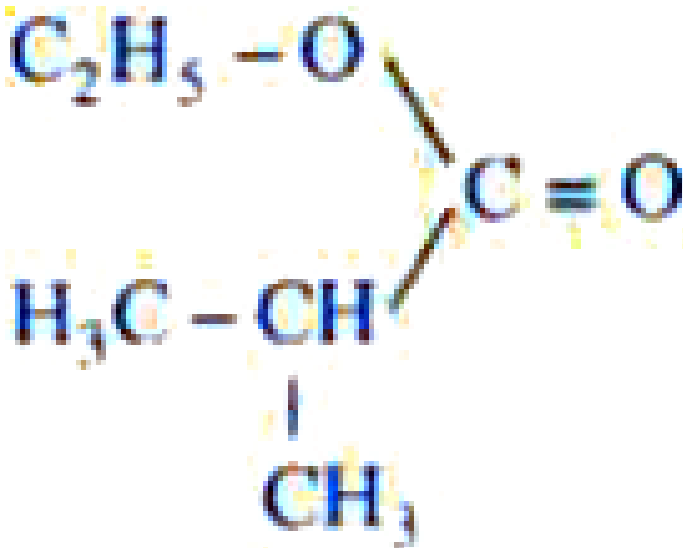
33. The correct IUPAC name of $CH_3 - \overset{\overset{O}{\parallel}}{C} - O - \overset{\overset{O}{\parallel}}{C} - CH_2CH_3$

- A. Acetyl methanoate
- B. Keto ethanoate
- C. Ethoxy methanoate
- D. Ethanoic propanoic anhydride

Answer: D



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34.

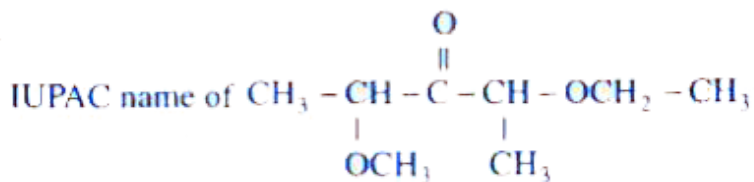
- A. Ethoxy methanone
- B. Ethoxy propanone
- C. Ethyl 2-methyl propanoate
- D. 2-methyl ethoxy propanone

Answer: C



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35. Iupac name of following compound



A. 2-Methoxy-4-ethoxy-pentan-3-one

B. 2-Ethoxy-4-methoxy-pentan-3-one

C. 2,4-Dimethoxy hexanone

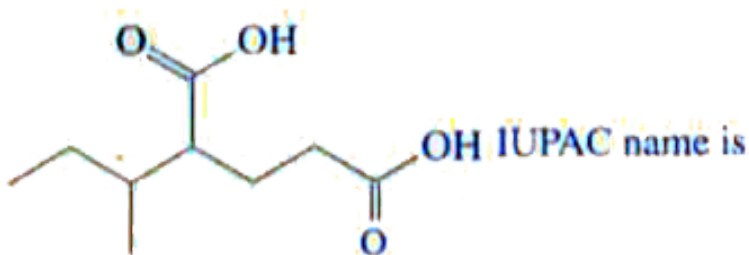
D. 2-Ethoxy-3-methoxy-pentan-3-one

Answer: B



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36.



A. 4 - Carboxy - 5 methylheptanoic acid

B. 1, 3 dicarboxy 4-methylhexane

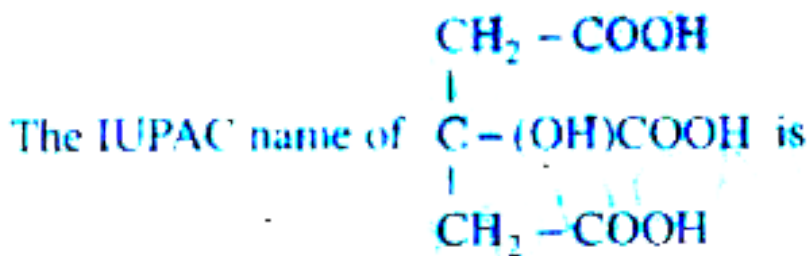
C. 1-Phenyl-butan-1-one

D. 2-iso butyl pentane 1,5 dioic acid

Answer: D



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37.

A. 2-hydroxy propane 1, 2, 3 -tricarboxylic acid

B. 3-hydroxy 1,2,3-pentanetricarboxylic acid

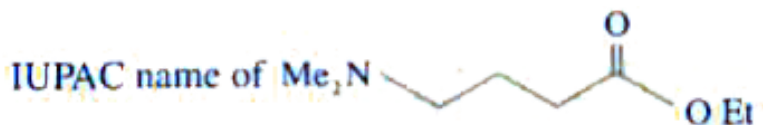
C. 3-Carboxy-3-hydroxy-1,5-pentandioic acid

D. both (a) & (c)

Answer: D

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38. IUPAC name of following compound



A. Ethyl 4-N, N-dimethylaminopentanoate

B. 1-N,N-dimethylamino-4-ethoxybutane

C. Ethyl 4-N, N-dimethylamino butanoate

D. Ethyl-3-N, N-dimethyl butanoate

Answer: C

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IUPAC name of $\text{CH}_3 - \text{N} - \text{C} - \text{Et}$ is

$$\begin{array}{c}
 \text{Me} \\
 | \\
 \text{CH}_3 - \text{N} - \text{C} - \text{Et} \\
 | \quad | \\
 \text{CH}_3 \text{CH}_2 \text{CH}_3
 \end{array}$$

39.

- A. 3-Methyl-N, N-dimethyl-3-pentanamine
- B. 2-Methyl-3-N, N-dimethylammonio pentane
- C. 3-Methyl-3-N, N-dimethylpentane
- D. None of the above

Answer: D



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40. IUPAC name of $\text{CH}_2 = \underset{\text{CH}_3}{\underset{|}{\text{C}}} - \text{CH}_2 - \overset{\text{O}}{\overset{||}{\text{C}}} - \text{OEt}$

- A. Ethyl 2-Methylbut -3-enoate
- B. 3-Ethylcarboxyprop-1-ene
- C. 4-oxo-4ethoxy-1-butane

D. Ethyl 3-methylbut-3-enoate

Answer: D



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Lecture Sheet Exercise II More Than One Correct Answer Type Questions

1. Which of the following statements is/are correct?

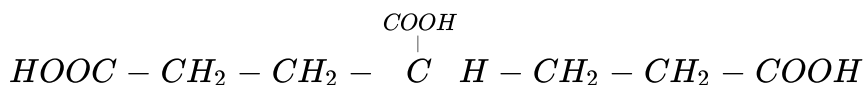
- A. Spiro compounds contain fused rings at quaternary carbon
- B. Bicyclo compounds contain two rings connected by bridge
- C. Bicyclo compounds can be bridged or fused.
- D. Lower Cyclic alkynes are unstable.

Answer: A::B::C::D



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2. Which of the following is correct IUPAC names are correct for the compound?



A. Pentane-1,3,5-tricarboxylic acid

B. 4-carboxyheptane-1,7 dioicacid

C. Heptane-1,4,7-trioicacid

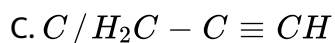
D. Octane-1,4,7-triolacid

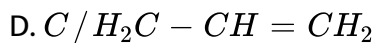
Answer: A



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3. The name chloromethyl acetylene implies





Answer: A::C



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4. In the following correct statements are

A. IUPAC name of pyruvic acid is 2-oxopropanoic acid

B. $CH_3 - \underset{\substack{| \\ OH}}{CH} - CH_2 - CH_2 - CH_3$ also called iso amyl alcohol

C. IUPAC name of acetonitrile is ethanenitrile

D. cinnamic acid is 3-phenylprop-2-enoic acid

Answer: A::C::D



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5. Which of the following statements is correct

- A. Sharp M.P. is the criteria of a pure organic solid
- B. Impurity in liquid elevates the B.P. of the liquid
- C. Impurity in solid decreases the M.P. of the solid
- D. Decrease of pressure decreases the B.P. of the liquid

Answer: A::B::C::D



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6. Which of the following statements is/are correct ?

- (1) Two organic compounds with the same general formula must belong to the same homologous series.
- (2) Two organic compound with one of the functional groups the same must belong to the same homologous series.
- (3) Two organic compounds with the molecular mass differing by 14 must belong to the same homologous series.

A. 1 only

B. 2 only

C. 1 and 3 only

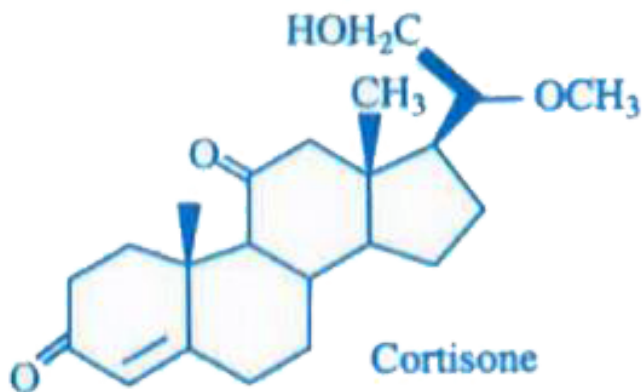
D. (b) and (c) only

Answer: B



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7. The functional groups in cortisone are:



A. Ether, alkene, alcohol

B. Alcohol, ketone, alkene, ether

C. Alcohol, ketone, amine

D. Ether, amine, ketone

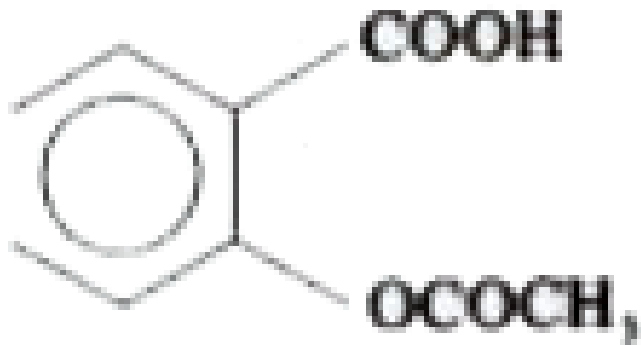
Answer: B



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Lecture Sheet Exercise II Linked Comprehension Type Questions

1. Aspirin is widely used as an analgesic drug. It is optically inactive. The structure of aspirin is



Ratio of $SP: SP^2: SP^3$ carbon hybrid orbitals in the Aspirin is

A. 0: 6: 1

B. 5: 2: 3

C. 4:1:6

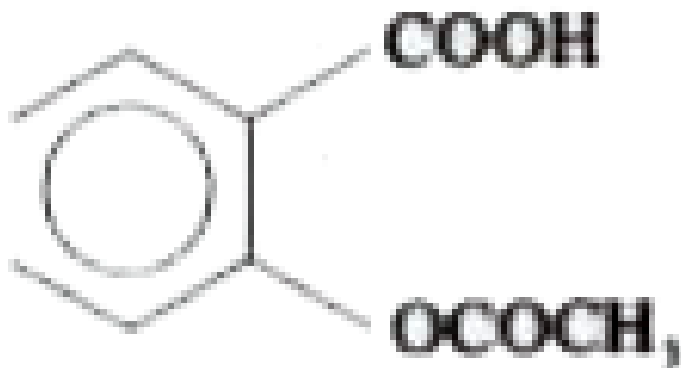
D. 1:6:2

Answer: A



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2. Aspirin is widely used as an analgesic drug. It is optically inactive. The structure of aspirin is



Which of the following is not correct name for Aspirin?

A. 2-O-Acetyl salicylic acid

B. 2-Acetoxy benzoic acid

C. 2-Acetoxy salicylic acid

D. 2-Acetoxy benzene carboxylic acid

Answer: C



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Lecture Sheet Exercise II Matrix Matching Type Questions

1. Match the following columns

Column-I
(Compound)

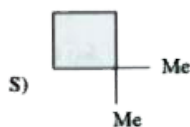
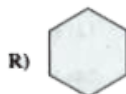
A) C_8H_{18} with only $1^\circ H$ atoms

B) C_6H_{12} with only $2^\circ H$ atoms

C) C_6H_{12} With only 1° and $2^\circ H$ atoms

D) C_8H_{14} with 12 secondary and 2 tertiary H atoms

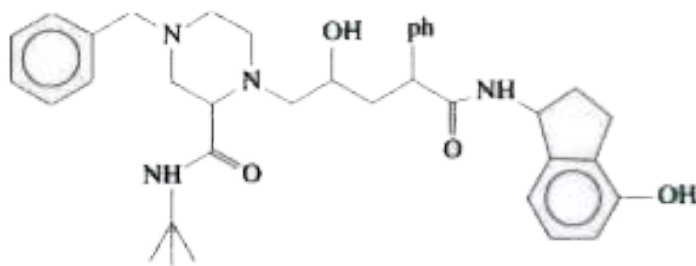
Column-II
(Structure)



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Lecture Sheet Exercise II Integer Type Questions

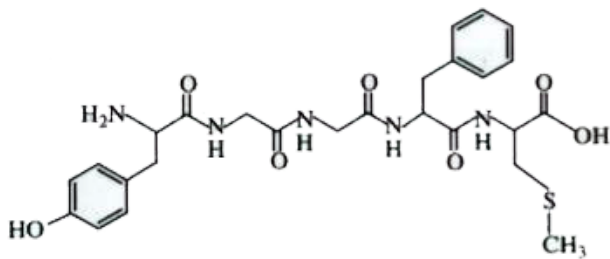
1. How many types of functional groups are present in the following structure.



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2. Met-enkephalin, an endorphin, serves as natural pain reliver that changes or removes the perception of nerve signals, How many types of

functional groups are present in Met-enkephalin.



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Practice Sheet Exercise I Level I Straight Objective Type Questions

1. 0.759 g of a silver salt of a dibasic organic acid on ignition left 0.463 g metallic silver. The equivalent mass of the acid is :

- A. 70
- B. 108
- C. 60
- D. 50

Answer: A



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2. 0.75 g platinumchloride of monoacid base on ignition gave 0.245 g platinum. The molecular mass of the base is :

A. 75

B. 93.5

C. 100

D. 80

Answer: B



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3. Property to be determined Method used for determination

P) Estimation of carbon and hydrogen in an organic compound

Q) Estimation of nitrogen in aniline

R) Estimation of chlorine in carbon tetrachloride

S) detection of nitrogen, sulphur and halogens

	P	Q	R	S
a)	(i)	(ii)	(ii)	(iv)
c)	(ii)	(i)	(iv)	(iii)

i) Lassaigne's test

ii) Carius method

iii) Liebig's method

iv) Kjeldahl's method

	P	Q	R	S
b)	(iv)	(iii)	(i)	(ii)
d)	(iii)	(iv)	(ii)	(i)



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4. Match the following:

P) Equivalent mass of an organic acid

Q) Equivalent mass of an organic base

R) Molecular mass of a volatile organic solid

S) Molecular mass of a non-volatile organic solid

	P	Q	R	S
a)	(iv)	(iii)	(ii)	(i)
c)	(iii)	(i)	(iv)	(ii)

i) Depression in freezing point

ii) Victor Meyer's method

iii) Platinichloride method

iv) Silver salt method

	P	Q	R	S
b)	(i)	(ii)	(iii)	(iv)
d)	(ii)	(iv)	(i)	(iii)



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5. If 0.02 g of a volatile compound on heating displaces 11.2 ml of dry air at STP, the molecular weight of the compound is

A. 20

B. 30

C. 40

D. 50

Answer: C



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6. 0.303 g of sample was analysed for nitrogen by Kjeldahl's method. The ammonia gas evolved was absorbed in 50 ml of 0.05 M H_2SO_4 . The excess acid required 25 ml of 0.1 M NaOH for neutralisation.

A. 11.5

B. 23

C. 12.5

D. 14.5

Answer: A



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7. Which of the following is purified by vacuum distillation

- A. Ethanol
- B. Glycerine
- C. Benzoic acid
- D. Chlorobenzene

Answer: B



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8. 0.59g of the silver salt of an organic acid (mol.wt. 210) on ignition gave 0.36 g of pure silver. The basicity of the acid is [AW of Ag = 108]

A. 1

B. 2

C. 3

D. 4

Answer: A



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9. A mixture of acetone and methanol can be separated by

A. vacuum distillation

B. steam distillation

C. fractional distillation

D. none of these

Answer: C



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10. In paper chromatography

- A. mobile phase is liquid and stationary phase is solid
- B. mobile phase is solid and stationary phase is liquid
- C. both phases are solids
- D. both phases are liquids

Answer: D



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11. The most satisfactory method of separating sugars from each other is:

- A. fractional crystallization
- B. sublimation
- C. chromatography

D. Benedict solution

Answer: C



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12. Impure glycerine can be purified by

A. steam distillation

B. vacuum distillation

C. simple distillation

D. extraction with a solvent

Answer: B



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13. If 0.2 gram of an organic compound containing carbon, hydrogen and oxygen on combustion, yielded 0.147 gram carbon dioxide and 0.12 gram water. What will be the content of oxygen in the substance ?

A. 0.6529

B. 0.734

C. 0.8323

D. 0.895

Answer: B



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14. 0.532 g of the chloroplatinate of an organic base (mol.wt 24 D) gave 0.195 g of Pt on ignition. Then the number of nitrogen atoms per molecule of the base is

A. 1

B. 2

C. 3

D. 4

Answer: D



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15. 0.246 g of the organic compound gave 22.4cm^3 of nitrogen gas at STP as determined by Dumas method. The percent of nitrogen in the compound is

A. 11.38

B. 17.07

C. 22.76

D. 34.14

Answer: A



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Practice Sheet Exercise I Level II Straight Objective Type Questions

1. Which can be purified by crystalization?

- A. Phenol
- B. Cane sugar
- C. Benzoic acid
- D. Acetanilide

Answer: B



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2. In separation by fractional crystallisation method, crystallisation of which of the following compounds occurs first ?

- A. compound hose melting point is highest
- B. compound hose boiling point is highest
- C. compound hose solubility is minimum
- D. compound hose molecular weight is minimum

Answer: C



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3. Which of the following processes is most appropriate for the separation of o-nitrophenol and p-nitrophenol from their mixture

- A. Fractional crystallisation
- B. Chromatography
- C. Steam distillation
- D. sublimation

Answer: C



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4. Some organic compounds are purified by distillation at low pressure because the compounds are

- A. are low boiling liquids
- B. are high boiling liquids
- C. are highly volatile
- D. decompose at their normal boiling point

Answer: D



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5. Raw juice in sugar factories is generally concentrated by:

- A. vacuum distillation
- B. steam distillation

C. sublimation

D. crystallization

Answer: A



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6. Turpentine oil can be purified by:

A. vacuum distillation

B. fractional distillation

C. steam distillation

D. simple distillation

Answer: C



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7. An organic compound X contains Y and Z impurities. Their solubilities differ in a chosen solvent. They may be separated by :

- A. simple crystalization
- B. fractional crystalization
- C. sublimation
- D. fractional distillation

Answer: B



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8. Absolute alcohol can be prepared from rectified spirit by

- A. Fractional distillation
- B. Simple distillation
- C. keeping over CaO for few hours and then distilling
- D. distillation under reduced pressure

Answer: C



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9. In Lassaigne's test, the reason behind the usage of sodium metal is

- A. Sodium melts easily and reacts with elements easily
- B. Sodium salts are ionic and water soluble
- C. Sodium salts are slightly soluble in water
- D. Sodium forms covalent compounds with elements of organic compounds

Answer: B



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10. 0.5 g of organic compound in Kjeldhal's method liberated ammonia, which neutralised 60 ml of 0.1 N H_2SO_4 solution. The percentage of

nitrogen in the compound is

A. 1.68

B. 16.8

C. 33.6

D. 8.4

Answer: B



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11. In Carius method of estimation of sulphur 0.466g of organic compound gave 0.233 g of $BaSO_4$. The percentage of sulphur is

A. 6.9

B. 13.8

C. 0.69

D. 2.3

Answer: A



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12. An organic compound having C, H and S elements contains 4% sulphur. The minimum molecular weight of the compound is

A. 800

B. 400

C. 200

D. 600

Answer: A



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13. 0.96g chloroplatinate of a diacid base when ignited gave 0.32 g platinum. The molecular mass of the base is [AW of Pt = 195]

A. 175

B. 350

C. 87.5

D. 210

Answer: A



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14. Two organic compounds have same empirical formula but different molecular formula, they must have

A. different percentage composition

B. same viscosity

C. different molecular weights

D. same vapour density

Answer: C



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15. Identify the incorrect statement among the following ?

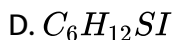
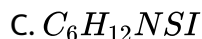
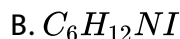
- A. Sublimation and crystallisation techniques are for purification of solid organic compounds
- B. Chromatography technique works on different extents of adsorption of a substances on an adsorbent surface
- C. Water (B.pt $100^{\circ}C$) and another miscible liquid Z(B.pt $105^{\circ}C$) mixture can be separated by fractional distillation.
- D. Phenol(B.pt $182^{\circ}C$) and Aniline (B.pt $184^{\circ}C$) mixture can be separated by simple distillation.

Answer: D



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16. Sodium fusion extract of an organic compound gives blood red colour with $FeSO_4 / Conc. H_2SO_4$ on heating. Fresh extract of the same compound gives black precipitate when mixed with $(CH_3COO)_2Pb$ and with yellow precipitate when treated with $AgNO_3$ solution. Then the organic compound may be



Answer: C



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17. In sulphur estimation, 3.2 grams of an organic compound give 2.33 grams of $BaSO_4$. Then the percentage of sulphur in the organic compound is

A. 0.15

B. 0.1

C. 0.2

D. 0.25

Answer: B



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18. Number of positional isomers of the compound 2-Bromo Bicyclo [2,2,1] Heptane(including the given one

A. 2

B. 4

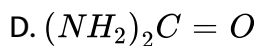
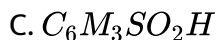
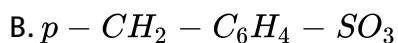
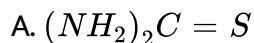
C. 5

D. 3

Answer: D

Practice Sheet Exercise I Level II More Than One Correct Answer Type Questions

1. Which of the following compounds may give blood red colouration while performing Lassaigne's test for nitrogen



Answer: A::B

2. Diethyl ether is mostly used in solvent extraction due to the following reasons

- A. Its solvation capacity is very high
- B. Being inert, it does not react with most of the organic compounds
- C. There are two lone pairs in it, therefore, it acts as a strong nucleophile
- D. Its boiling point is low therefore, it can be easily separated by distillation

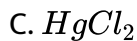
Answer: A::B::D



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3. Which of the following compounds undergoes sublimation?

- A. Naphthalene
- B. Camphor



Answer: A::B::C::D



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4. Which of the following compounds can be purified by steam distillation

A. salicylaldehyde

B. Bromobenzene

C. p-hydroxybenzaldehyde

D. Aniline

Answer: A::D



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1. The 0.2 g of anhydrous organic acid gave on combustion 0.04 g of water and 0.195 g of CO_2 . The acid is a dibasic acid and 0.5 g of its silver salt leaves on ignition 0.355 g of silver.

The percentage of carbon in the compound is

- A. 50
- B. 52
- C. 26.6
- D. 90

Answer: C



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2. The 0.2 g of anhydrous organic acid gave on combustion 0.04 g of water and 0.195 g of CO_2 . The acid is a dibasic acid and 0.5 g of its silver

salt leaves on ignition 0.355 g of silver.

The percentage of hydrogen in the compound is

A. 5.6

B. 2.22

C. 4.44

D. 10

Answer: B



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3. The 0.2 g of anhydrous organic acid gave on combustion 0.04 g of water and 0.195 g of CO_2 . The acid is a dibasic acid and 0.5 g of its silver salt leaves on ignition 0.355 g of silver.

The percentage of hydrogen in the compound is

A. 90

B. 100

C. 10

D. 45

Answer: D



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4. During the estimation of nitrogen in an organic compound by Kjeldhal's method, the ammonia evolved from 0.5g of the compound was absorbed in 50 ml of $0.5M H_2SO_4$. The residual acid required 60 ml of 0.5 M NaOH solution.

What volume of H_2SO_4 is used by NH_3 in the process

A. 50ml

B. 10ml

C. 20ml

D. 30ml

Answer: C

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5. During the estimation of nitrogen in an organic compound by Kjeldhal's method, the ammonia evolved from 0.5g of the compound was absorbed in 50 ml of $0.5M H_2SO_4$. The residual acid required 60 ml of 0.5 M NaOH solution.

The number of grams of NH_3 released in the process is

A. 0.4

B. 17

C. 0.34

D. 30

Answer: C

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6. During the estimation of nitrogen in an organic compound by Kjeldhal's method, the ammonia evolved from 0.5g of the compound was absorbed in 50 ml of $0.5M H_2SO_4$. The residual acid required 60 ml of 0.5 M NaOH solution.

The percentage of nitrogen in the compound is

- A. 2.8
- B. 56
- C. 18.6
- D. 14

Answer: B



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7. The hetero elements in organic compound are nitrogen, halogen, sulphur and phosphorous, Nitrogen is estimated by Duma's method (or) Kjeldahl's method. The other hetero elements are estimated using Carius

method.

0.25 g of an organic compound gave 22.4 ml. of N_2 at STP by Duma's method. The percentage of Nitrogen in the compound is

A. 0.15

B. 0.28

C. 0.112

D. 0.14

Answer: C



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8. The hetero elements in organic compound are nitrogen, halogen, sulphur and phosphorous, Nitrogen is estimated by Duma's method (or) Kjeldahl's method. The other hetero elements are estimated using Carius method.

In the estimation of halogen by Carius method, which of the following is carried out

- A. Oxidation of compound by conc, H_2SO_4
- B. Heating of the compound with fuming nitric acid and $AgNO_3$
- C. Combustion of the compound
- D. Dissolving of compound directly into aq. $AgNO_3$

Answer: B



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9. The hetero elements in organic compound are nitrogen, halogen, sulphur and phosphorous, Nitrogen is estimated by Duma's method (or) Kjeldahl's method. The other hetero elements are estimated using Carius method.

The substance used in the estimation of phosphorous is

- A. Conc. H_2SO_4
- B. fuming sulphuric acid and $MgCl_2$
- C. Conc. HNO_3 . $NaOH$

D. fuming nitric acid and magnesia mixture

Answer: D



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Practice Sheet Exercise I Level II Matrix Matching Type Questions

1. Match the following columns

Column-I

- A) Sublimation
- B) Distillation
- C) Vacuum distillation
- D) Steam distillation

Column-II

- P) Ether + Toluene
- Q) o-nitrophenol + p-nitrophenol
- R) Benzoic acid + Benzaldehyde
- S) Glycerol and aniline



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2. Match the following columns

Column-I (Characteristics)

- A) Quantitative estimation of C and H in an organic compound
- B) Equivalent mass of an organic acid
- C) Quantitative estimation of halogens in organic compound
- D) Quantitative estimation of N in nitrobenzene

Column-II (Methods)

- P) Kjeldahl's method
- Q) Carius method
- R) Liebig method
- S) Silver salt method



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3. Match the following columns

Column-I

- A) Balmer series
- B) Paschen series
- C) Pfund series
- D) Bracket series

Column-II

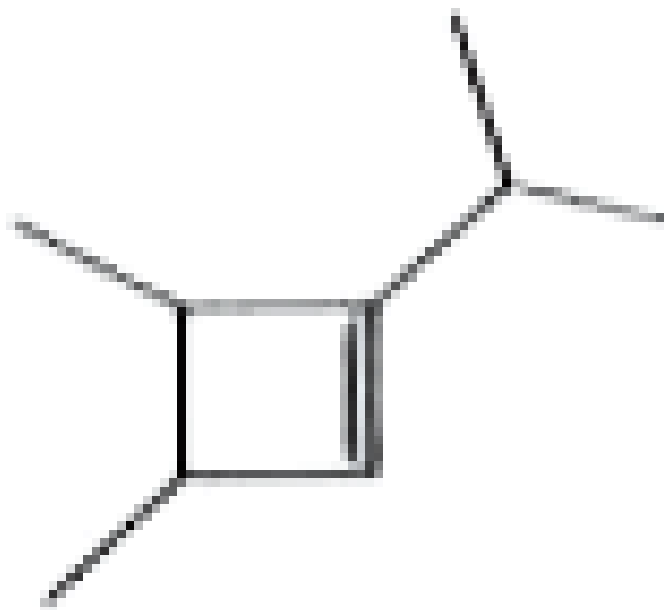
- P) Infrared region
- Q) Visible region
- R) Result of electronic transitions from outer shells to 2nd shell
- S) Result of electronic transitions from outer shells to 4th shell



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Practice Sheet Exercise I Level II Integer Type Questions

1. Find the sum of 1° 2° & 3° C present in the given compound



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2. Find the number of sp carbons of Hept 3,4 di ene 1,6 di yne.



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3. How many methyl groups present in neo pantane.



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Practice Sheet Exercise II Level I Straight Objective Type Questions

1. 2,3-dimethylhexane contains.....tertiary.....secondary and...primary carbons respectively.

A. 2,2,4

B. 2,4,3

C. 4,3,2

D. 3,2,4

Answer: A



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2. IUPAC name of Allyl chloride

A. 1-chloro -1-propene

B. 1- chloro -2- propene

C. 3 - chloro -2- propene

D. 3 - chloro-1-propene

Answer: D



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3. The compound in which Causes only SP^3 hybrid orbitals for bond formation is

A. $HCOOH$

B. $(NH_2)_2CO$

C. $(CH_3)_2COH$

D. CH_3CHO

Answer: C



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4. The maximum number of linear atoms in propyne molecule are

A. 3

B. 4

C. 2

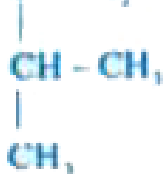
D. 6

Answer: B



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The IUPAC name of $\text{CH}_2 = \text{C} - \text{CH}_2 - \text{CH}_2$ is



5.

A. 2-Ethyl-3-methylbut - 1 -ene

B. 2-Isopropylbutene-2

C. 2-Methyl-3-ethylbutene-3

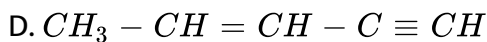
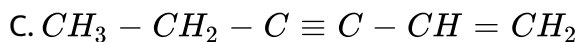
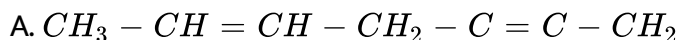
D. Ethyl isopropylethane

Answer: A



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6. Which compound given below has sp^3 , sp^2 and sp orbitals in the ratio of 6:3:2



Answer: A



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7. How many “methyl groups” are present in 2,3-dimethyl-4-ethyl heptane

A. 2

B. 8

C. 4

D. 5

Answer: D



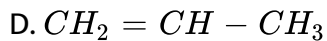
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8. In which of the following species is the underlined carbon having sp^3 hybridisation ?

A. CH_3COOH

B. CH_3CH_2OH

C. CH_3COCH_3



Answer: B



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9.



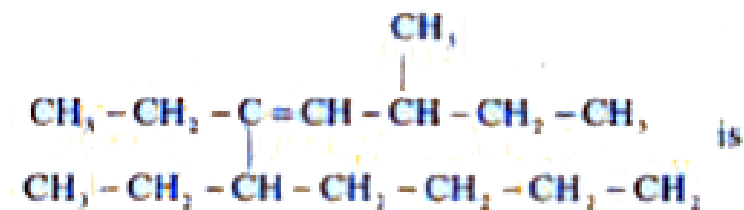
- A. iso prene
- B. chloroprene
- C. 2-methyl-1,3-butadiene
- D. 2-chloro-1,3-butadiene

Answer: D



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10. Correct IUPAC name of



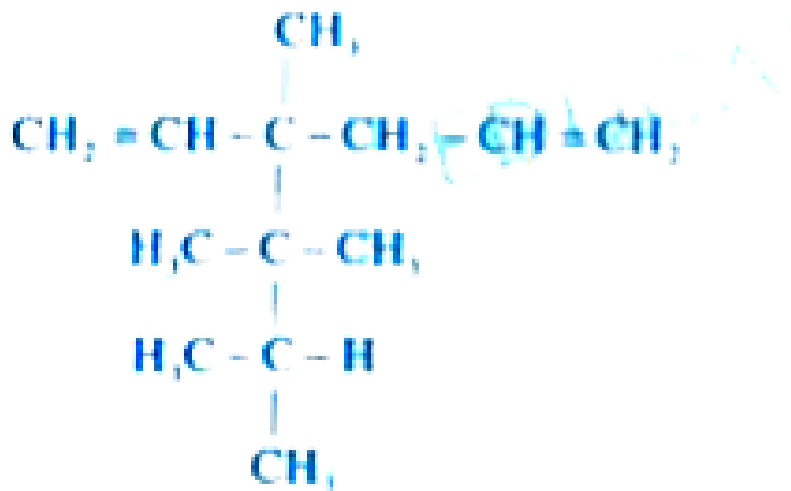
- A. 5,6-Diethyl-3-methyl dec-4-ene
- B. 5,6-Diethyl-8-methyl dec-6-ene
- C. 6-Butyl-5-ethyl-3-methyl oct-4-ene
- D. 2,4,5-triethyl-3-nonene

Answer: A



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11. IUPAC name of



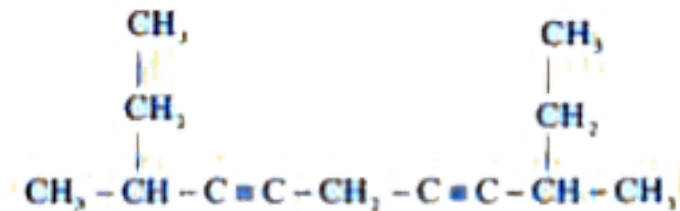
- A. 3-(1,1,2-trimethyl) propyl-1,5 hexadiene
- B. 3-methyl-3-(1,1,2-trimethyl propyl)-1,5 hexadiene
- C. 4-methyl-4-vinyl-5,5,6-trimethyl hept-1-ene
- D. 4,5,5,6-tetra methyl-4-vinyl hept-1-ene

Answer: B



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12. The correct IUPAC name of



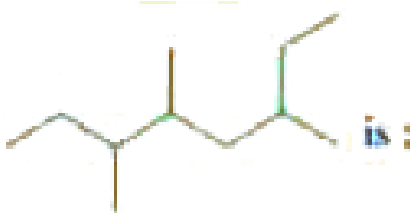
- A. 2,8-Diethyl-3,6-nonadiyne
- B. 1,5-secondary butyl-1,4-pentadiyne
- C. 1,8-dimethyl-4,7-undecadiyne
- D. 3,9-dimethyl-4,7-undecadiyne

Answer: D



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The IUPAC name for



is :

13.

A. 6-Ethyl-3,4-dimethylheptane

B. 2-Ethyl-4,5-dimethylheptane

C. 3,4,6-Trimethyloctane

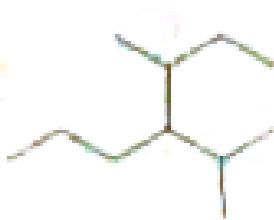
D. 3,5,6-Trimethyloctane

Answer: C



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An IUPAC name for



is:

14.

A. 5-Methy 1-4-(1-methylpropyl) hexane

B. 2-Methy 1-3-(1-methylpropyl) hexane

C. 2-Methy 1-3-(2-methylpropyl) hexane

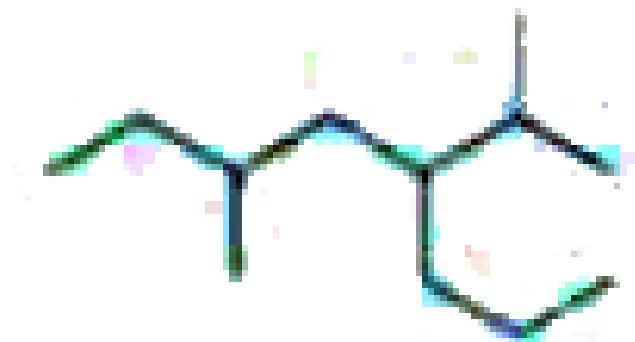
D. 3-Methy 1-4-(1-methylethyl) heptane

Answer: D



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15. A correct IUPAC name for the following compound is:



- A. 2,5-Dimethyl-3-propyl heptane
- B. 3,6-Dimethyl-5-propyl heptane
- C. 6-Methyl-4-(1-methylethyl)octane
- D. 3-Methyl-5-(1-methylethyl)octane

Answer: D



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Practice Sheet Exercise II Level II Straight Objective Type Questions

1. A correct IUPAC name for the following compound is :



- A. 4-propyl-5-chloro-3-heptanol
- B. 4-(1-chloropropyl)-3-heptanol
- C. 4-propyl-3-chloro-5-heptanol
- D. 5-chloro-4-propyl-3-heptanol

Answer: D



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2. A correct IUPAC name for the following compound is:



- A. 3,6,7-trimethyl-4-bromo-1-octene
- B. 4-bromo-3-methyl-6-isopropyl-1-heptene
- C. 4-bromo-3,6,7-triethyl-1-octene
- D. 4-bromo-6-isopropyl-3-methyl-1-heptene

Answer: C



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3. A IUPAC name for the group $\begin{array}{c} CH_3 \quad C \quad HCH_2 \\ | \\ CH_2CH_3 \end{array}$ - is

A. Isopentyl

B. Isoamyl

C. 2-Ethylpropyl

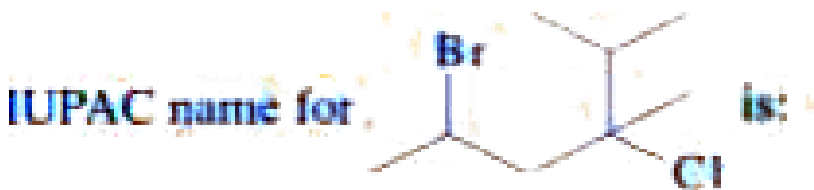
D. 2-Methylbutyl

Answer: D



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4. Give IUPAC Name of the Given Compound



A. 2-Bromo-4-chloro-4-isopropylpentane

B. 2-Bromo-2-chloro-2-isopropylpentane

C. 5-Bromo-3-chloro-2,3-dimethylhexane

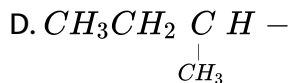
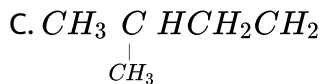
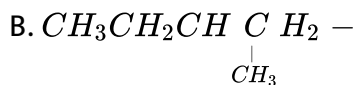
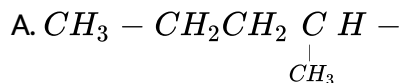
D. 2-Bromo-4-chloro-4,5-dimethylhexane

Answer: C



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5. Isopentyl is the common name for which alkyl group?

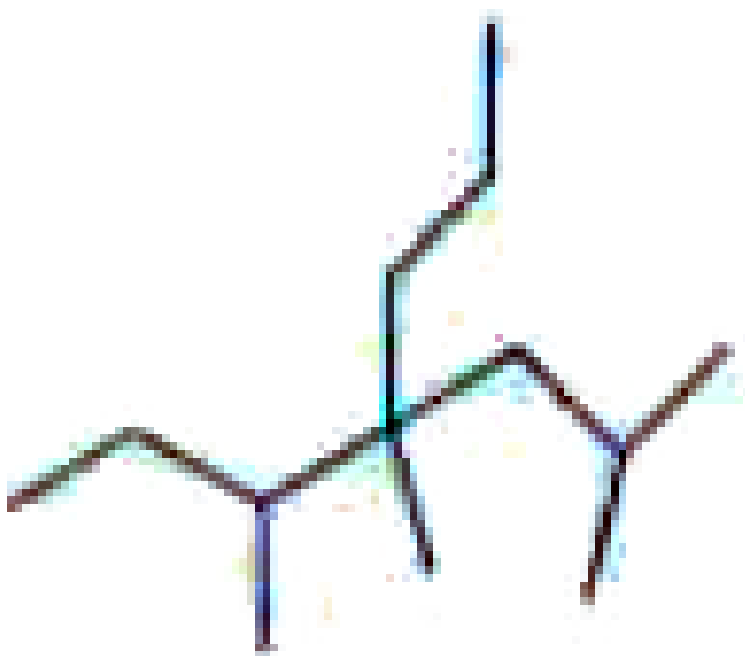


Answer: C



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6. An IUPAC name for the following compound is:



A. 4-Isobutyl-3,4-dimethylheptane

B. 4-sec-Butyl-2,4-dimethylheptane

C. 2,4,5-Trimethyl-4-propylheptane

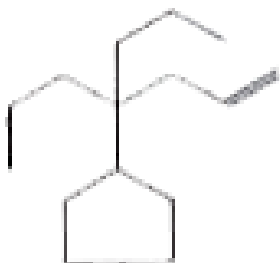
D. 3,4,6-Trimethyl-4-propylheptane

Answer: C

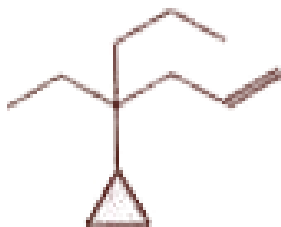


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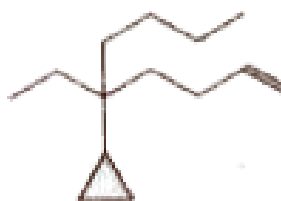
7. Which of the following is named 4-cyclopropyl-4-ethyl-2-heptene



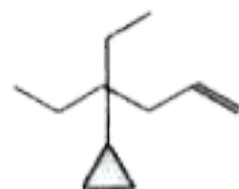
A.



B.



C.



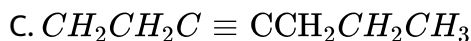
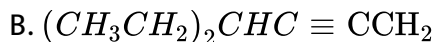
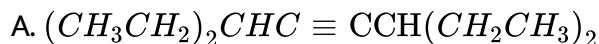
D.

Answer: B



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8. Which molecule represents 4-ethyl-2-hexyne ?

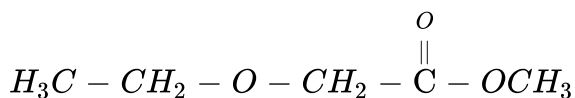


Answer: B



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9. The functional group(s) present in



A. Ether, Ketone

B. Ketone

C. Ester, Ether

D. Ether, Ether

Answer: C



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10. Which of the following is called non benzonoid molecule / ion



A.



B.



C.

D. All the above

Answer: D



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11. The number of isomeric alkyl group possible for C_4H_9- is

A. four

B. three

C. two

D. five

Answer: A



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Practice Sheet Exercise II Level II More Than One Correct Answer Type Questions

1. Which of the following statements is/are correct?

A. $R - \overset{\overset{O}{\parallel}}{C} - O - \overset{\overset{O}{\parallel}}{C} - R$ is an unsaturated compound.

B. Neohydrocarbons contain a $3^\circ C$ atom

C. The IUPAC name of isopropyl alcohol is propan-2-ol.

D. The IUPAC name of (CH_3CN) is ethanenitrile.

Answer: C::D

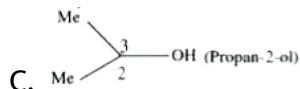


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2. Which of the following statements are correct

A. IUPAC name of neopentane is 2,2-di methyl propane

B. Neopentane contain one 4° C atom



D. $CH_3^2 - ^1C \equiv N$ (ethane nitrile)

Answer: A::B::C::D

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3. Which of the following statements is/are correct?

A. Methane was named as fire damp as it forms explosive mixture with air

B. Primary suffixes are added the root word to show saturation or unsaturation in a C atom.

C. The IUPAC name of Valeric acid is pentanoic acid

D. The common name of hexanoic acid is caproic acid.

Answer: A::B::C::D



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4. Which of the following statements is/are correct

- A. The IUPAC name of amyl alcohol is pentanol.
- B. The IUPAC name of isoamyl alcohol is 3-methyl butanol.
- C. wood spiric is methanol
- D. methyl alcohol is also called carbinol.

Answer: A::B::C::D



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5. Which of the following statements is/are correct ?

- A. The trival names of organic compounds are called common names

- B. The systematic names of organic compounds are obtained from the IUPAC system
- C. The systematic names of alkanes are based on the number of C atom in the longest continuous chain of C atoms
- D. The maximum number of functional groups must be include in the C atom chain selected even if it does not satisfy the longest chain rule.

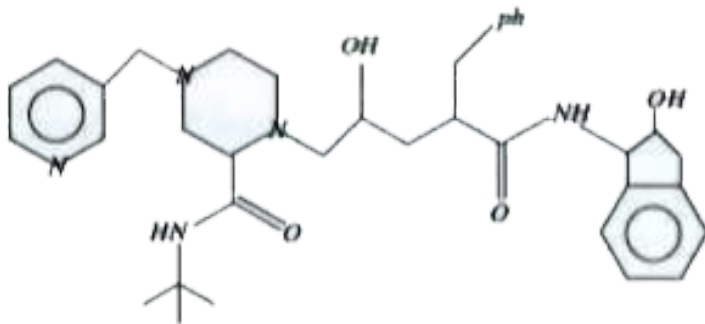
Answer: A::B::C::D



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Practice Sheet Exercise II Level II Linked Comprehension Type Questions

1. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of cirxivian is given below:



How many 2° alcohol groups are present in the above compound?

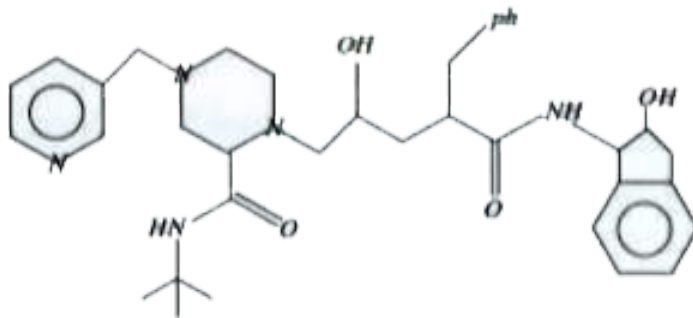
- A. 0
- B. 1
- C. 2
- D. 3

Answer: C



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2. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of cirxivian is given below:



How many amide groups are present in the compound?

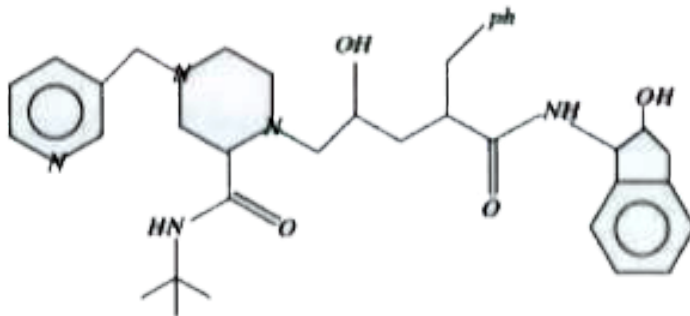
- A. 0
- B. 1
- C. 2
- D. 3

Answer: C



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3. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of cirxivian is given below:



How many 3° amine groups are present in the compound?

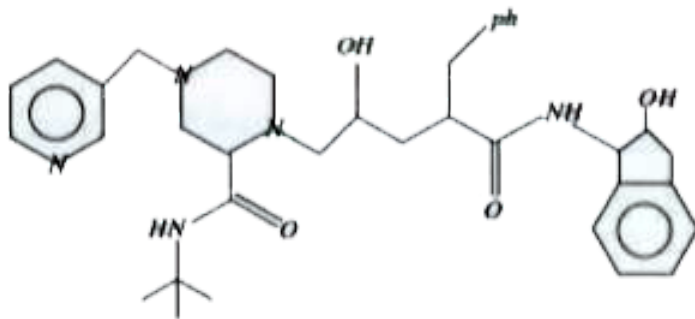
- A. 0
- B. 1
- C. 2
- D. 3

Answer: C



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4. Crixivan, a drug produced by Merck by Merck and Co., is widely used in the fight against AIDS (acquired immune deficiency syndrome). The structure of crixivan is given below:



How many 2° amine groups are present in the compound?

- A. 0
- B. 1
- C. 2
- D. 3

Answer: A



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5. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and

Kjeldahl's method.

Carius method is used for the quantitative estimation of:

A. C and H

B. Halogens

C. S and P

D. N

Answer: A



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6. Quantitative estimation of C, H, and extra elements (e.g., N, S, P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Dumas and Kjeldahl's methods are used for quantitative estimation of:

A. C and H

B. Halogens, S, and P

C. N

D. All

Answer: B



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7. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Carius method is used for the quantitative estimation of:

A. C and H

B. Halogens, S, and P

C. N

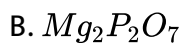
D. All

Answer: C



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8. In Carius method for the quantitative estimation of phosphorous, by using magnesia mixture, phosphorous is estimated by :



D. All

Answer: B



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9. In carius method for the quantitative estimation of sulphur, it is estimated by

A. BaS

B. CaSO_4

C. BaSO_4

D. BaCl_2

Answer: C



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10. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Carius is the name of

A. A chemist

B. A biologist

C. A sealed capillary tube

D. A long-necked round-bottom flask

Answer: C



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11. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

Kjeldahl's is the name of

- A. A chemist
- B. A biologist
- C. A sealed capillary tube
- D. A long-necked round-bottom flask

Answer: D



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12. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

In the quantitative estimation of phosphorous by using magnesia mixture, the formula used is:

A. Percentage of $P = \frac{62}{222} \times \frac{W \times 100}{w}$

B. Percentage of $P = \frac{31}{222} \times \frac{W \times 100}{w}$

C. Percentage of $P = \frac{62}{222} \times \frac{w \times 100}{W}$

D. Percentage of $P = 31/222 \times \frac{w \times 100}{W}$

Answer: A



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13. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig's combustion, Carius, Dumas, and Kjeldahl's method.

In the quantitative estimation of phosphorous by using magnesia misture, the formula used is:

A. percentage of $P = \frac{31}{1877} \times \frac{W \times 100}{w}$

B. percentage of $P = \frac{62}{1877} \times \frac{W \times 100}{w}$

C. percentage of $P = \frac{31}{1877} \times \frac{w \times 100}{W}$

D. percentage of $P = \frac{62}{1877} \times \frac{w \times 100}{W}$

Answer: A



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14. Quantitative estimation of C, H, and extra elements (e.g., N,S,P and halogens) is carried out by Liebig.s combustion, Carius, Dumas, and Kjeldahl.s method.

In the quantitative estimation of oxygen by using I_2O_5 , the formula used is:

A. percentage of $O = \frac{44}{32} \times \frac{W \times 100}{w}$

$$\text{B. percentage of } O = \frac{32}{44} \times \frac{W \times 100}{w}$$

$$\text{C. percentage of } O = \frac{44}{32} \times \frac{w \times 100}{W}$$

$$\text{D. percentage of } O = \frac{32}{4} \times \frac{w \times 100}{W}$$

Answer: B

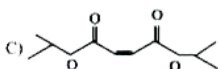
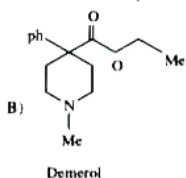
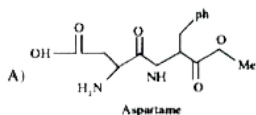


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Practice Sheet Exercise II Level II Matrix Matching Type Questions

1. Match the following columns

Column-I (Compound)



Column-II (Containing all the functional groups)

P) Ene and diester

Q) Carboxylic acid, 1° amine, amide

R) Ester

S) 3° amine

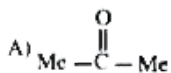


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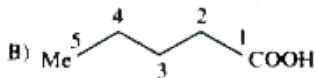
2. Match the following columns

Column-I (Compound)

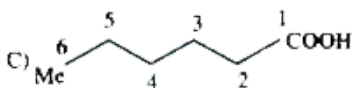
Column-II (Common name)



P) Caproic acid



Q) Carbinol

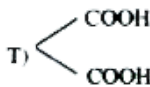


R) Acetone

D) CH_3OH

S) Valeric acid

E) PhOH



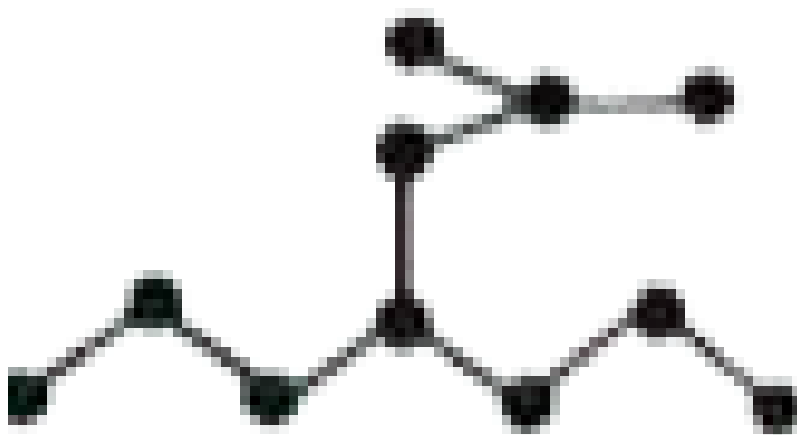
F) Malonic acid

U) Carbolic acid



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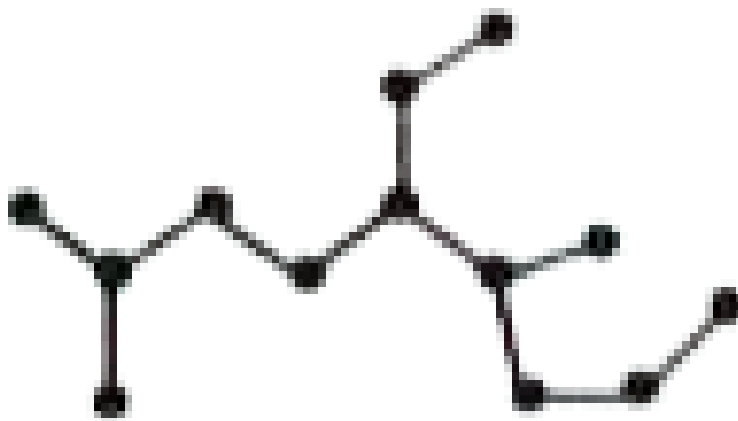
Practice Sheet Exercise II Level II Integer Type Questions



1. _____, How many 2° carbon present in above compound ?



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2.

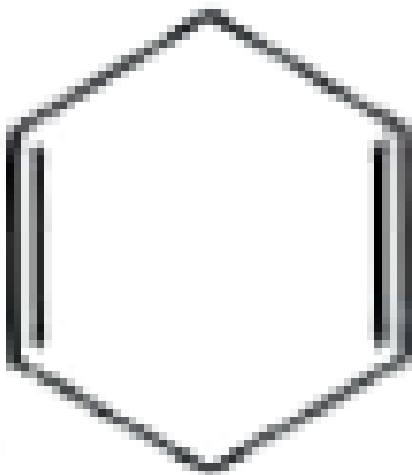
How many

$-CH_3$ group are present in given alkane ?



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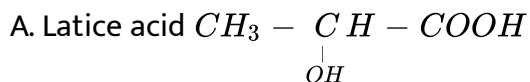
3. How many $C - C\sigma$ - bonds are present in the given compound ?

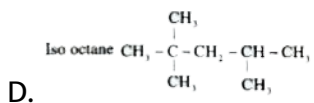
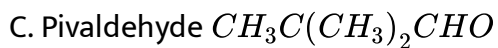
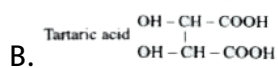


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Additional Practice Exercise Level I Main Straight Objective Type Questions

1. Which of the following is not correctly matched :





Answer: D



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2. What is the IUPAC name of



A. 3-Ethyl-5-methyl-1-n-propylbenzene

B. 3-Ethyl-5-propyltoluene

C. 3-Ethyl-1-methyl-5-n-propylbenzene

D. 1-Ethyl-3-methyl-5-n-propylbenzene

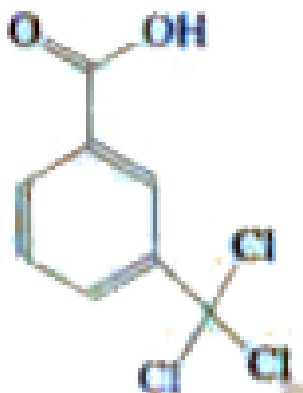
Answer: D



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3. IUPAC name of following compound

The IUPAC name of



- A. 3-trichlorobenzoic acid
- B. 3-(trichloromethyl)-benzoic acid
- C. 3-chloralbenzoic acid
- D. 3-chlorobenzoic acid

Answer: B



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4. The name of $CH_3CH(C_6H_5)CH_2\underset{OH}{\underset{|}{CH}} - CH_2CH_3$ is

A. 1-ethyl-3-phenyl-1-butenol

B. 2-phenyl-4-hexanol

C. 5-phenyl-3-hexanol

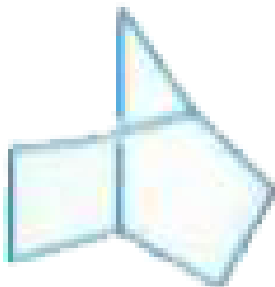
D. 5-benzyl-43-hexanol

Answer: C



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The name of



is

5.

A. bicyclo [2,2,1] heptane

B. methylene cyclohexane

C. ethylene cyclopentane

D. none of these

Answer: A



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6. The IUPAC name of $CH_3CH_2 - CH_2 - \overset{\overset{CH=CH_2}{|}}{C}H - CH_2CH_2CH_3$ is

A. 3-propyl-1-hexene

B. 3, 3-dirpropyl-1-propene

C. 4-ethenyl-heptane

D. None of these

Answer: A



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The IUPAC name of $\text{CH}_3 - \text{CH}_2 - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \text{CH}_2 - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \text{CH}_3$ is

7.

A. 3, 4-dimethyl-6-ethylheptane

B. 2-ethyl-4,5-dimethylheptane

C. 3, 4, 6-trimethyloctane

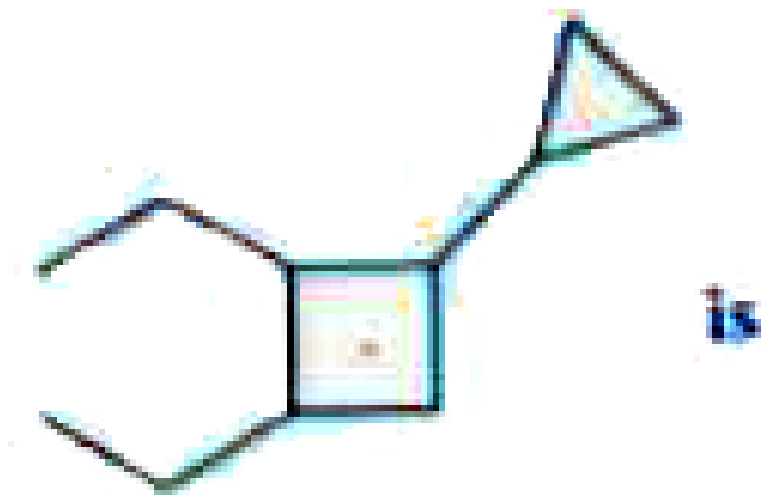
D. 3, 5, 6-trimethyl-octane

Answer: C



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8. The correct IUPAC name of the compound



- A. Cyclobutyl cyclopropyl cyclohexane
- B. 7-cyclopropyl bicyclo [4,2,0] octane
- C. 2-cyclopropyl bicyclo [5,2,0] nonane
- D. 6-cyclo propyl bicyclo [2, 4, 0] octane

Answer: B



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9. How many isomeric structures can heptane (C_7H_{16}) have?

- A. five
- B. six
- C. eight
- D. nine

Answer: D



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10.



- A. 4,5-dimethyloct -4-ene
- B. 2,3-dipropylbut-2-ene

C. 4-methyl-5-propylhex-4-ene

D. 2-propyl, 3-methyl-2-hexene

Answer: A

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11.



A. 9-Borabicyclo[3.3.1] nonane

B. 9-Borabicyclo[3.3.3] nonane

C. 9-Borabicyclo[3.3.2] nonane

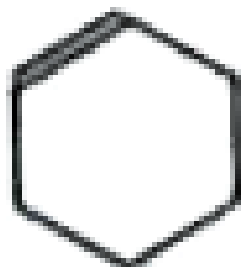
D. 8-Borabicyclo[3.3.1] octane

Answer: C

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12. Which of the following wrong

- A. 4-methyl pentane does not exist in IUPAC nomenclature
- B. IUPAC name of Neopentyl bromide is 1-Bromo -2,2 dimethyl propane.



- C. Primary prefix is not used in IUPAC name of
- D. An industrial waste water is found to contain 8.2% Na_3PO_4 and 12% $MgSO_4$ by weight in solution, if percentage of ionization of Na_3PO_4 and $MgSO_5$ re 50 and 60 respectively then its normal boiling point is $101.78^\circ C$

Answer: C



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The IUPAC name of



is

13.

- A. 3-methylcyclohexane
- B. 3-methylcyclohexane
- C. 1-methylcyclohex-2-ene
- D. 1-methylcyclohex-5-ene

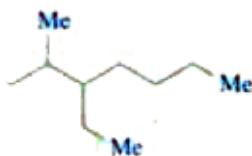
Answer: B



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14. IUPAC name of following compound

Name of the compound given below is



- A. 4-methyl-3-ethyloctane

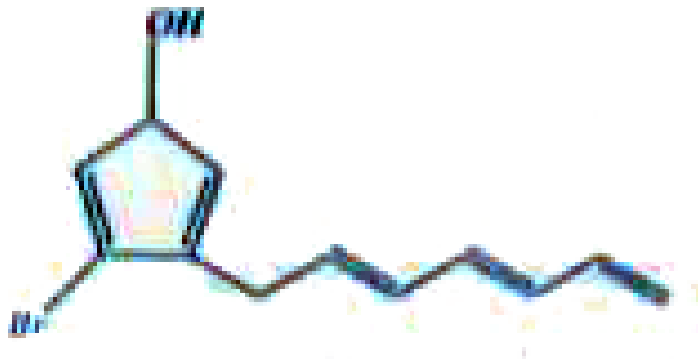
- B. 4-ethyl-3-methyloctane
- C. 5-ethyl-6-methyloctane
- D. 3-isobutyl-heptane

Answer: B



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15. Correct IUPAC name of the following compound is



- A. 3-(Hepta-2,4,6-trientyl)-4-bromo cyclopenta -2,4, -dien-1-ol
- B. 7-(2-Bromo-4-hydroxy cyclopenta-1,4-dienyl) hepta-1,3,5-triene
- C. 7-(5-Bromo-3-hydroxy cyclopenta-1,4-dienyl) hepta-1,3,5-triene

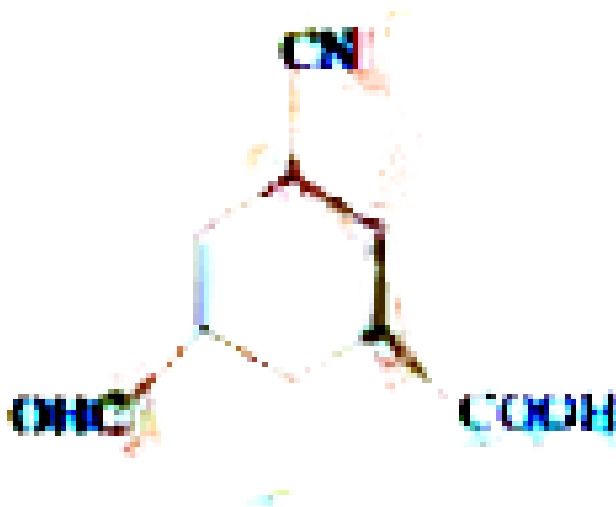
D. 3-Bromo-4-(hepta-2,4,6-trienyl) cyclopenta-2,4-dien-1-ol

Answer: D



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16. The IUPAC name of the following compound is

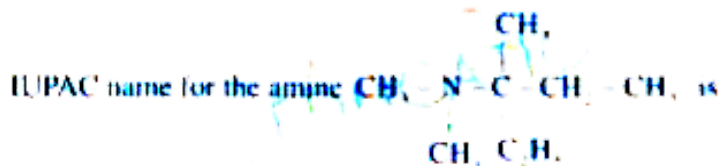


- A. 5-cyano-3-formylcyclohex-3-en-1-carboxylic acid
- B. 3-cyano-5-formylcyclohex-4-ene-1-carboxylic acid
- C. 5-cyano-3-formylcyclohex-3-ene-1-carboxylic acid
- D. 5-carboxy-3-formylcyclohex-2-ene-1-carbonitrile

Answer: C



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17.

- A. 3- dimethylamino -3-methylpentane
- B. 3 (N, N - Triethyl) -3-aminopentane
- C. 3-N, N - Trimethyl pentanamine
- D. 3-(N,N-Dimethylamino)-3-methylpentane

Answer: D



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18. IUPAC name of the compound is $\text{H}_3\text{C}-\text{CH}_2-\underset{\text{CHCl}_2}{\text{CH}}-\underset{\text{CCl}_3}{\text{CH}}-\text{CH}_2\text{CH}_3$

- A. 3-(Monochloro methyl)-4-(trichloro methyl) hexane
- B. 3-(Dichloro methyl)-4-(trichloro ethyl) hexane
- C. 3-(Dichloro ethyl)-4-(trichloro ethyl) hexane
- D. 3-(Dichloro methyl) -4-(trichloro methyl) hexane

Answer: D



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19. Which of the following IUPAC names are incorrect

- A. 2 methyl 2 propylhexane
- B. 2-methyl hexane
- C. 3,3-dimethylpentane

D. 3-ethyl-2,2-dimethylpentane

Answer: A



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20. Write the preferential order in naming polyfunctional compounds.

A. $-COOH > -COOR > CN > -OH > \text{alkene} > -SO_3H$

B. $-COOH > -SO_3H > -COOR > CN > -OH > \text{alkene}$

C.

$-COOH > -CN > -COOR > -OH > \text{alkene} > -SO_3H$

D. $-COOH > -SO_3H > -COOR > -OH > CN > \text{alkene}$

Answer: B



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21. (A): Pentane and 2-methyl pentane are homologues to each other

(R): Pentane is a straight chain alkane, while 2-methyl Pentane is a branched chainalkane

- A. If both (A) and (R) are correct and (R) is correct explanation for (A)
- B. If both (A) and (R) are correct and (R) is not correct explanation for (A)
- C. If (A) is correct and (R) is incorrect.
- D. If (A) is Incorrect and (R) is correct.

Answer: B



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22. Which of the following is correct IUPAC ?

- A. 1-ethyl-3-isopropyl-5-propyl cyclo hexane
- B. 1-propyl-3-isopropyl-5-ethyl cyclo hexane

C. 3-ethyl-5-isopropyl-1-propyl cyclo hexane

D. 1-isopropyl-3-ethyl-5-propyl cyclo hexane

Answer: A



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23. No. of σ - and π - bonds in acrylonitrile

A. 3π and 6σ

B. 7σ and 2π

C. 7σ and 3π

D. 2π and 6σ

Answer: A



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Additional Practice Exercise Level II Lecture Sheet Advanced More Than One Correct Answer Type Questions

1. Which of the following statements is/are not correct?

- A. Aluminium wire is used in Beilstein test
- B. Nitrogen gas is quantitatively estimated in Dumas method
- C. In Kjeldahl's method, organic compound is reacted with conc, H_2SO_4 . K_2SO_4 is also added.
- D. All organic compounds contain both C and H

Answer: B::C::D



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2. Which of the following statements is/are wrong?

- A. Sulphur is estimated by Carius method as $BaSO_4$

B. Victor Meyer's Method is used for the determination of molecular mass of a non-volatile compound.

C. Kjeldahl's method is used for all nitrogen-containing organic compounds

D. Phosphorous is estimated by Carius method as $Mg(NH_4).PO_4$

Answer: C::D



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3. Which of the following statements is/are correct ?

A. Liebig's method is used for the quantitative estimation of both C and H.

B. Dumas method is used for the quantitative estimation of N in all nitrogen-containing organic compounds.

C. In Liebig's combustion method, ordinary CuO is used

D. Silver salt method is a chemical method for the determination of equivalent mass of organic acids.

Answer: A::B::D



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4. Which of the following statements is/are wrong?

- A. Beilstein test is a reliable test for halogens in organics compounds.
- B. In Lassaigne's test for N, Prussian blue colour is due to the formation of ferro-ferri cyanide.
- C. $FeCl_3$ solution is added to the Lassaigne's extract to detect the presence of both N and S
- D. Molecular mass of an acid = Equivalent mass X acidity

Answer: A::B::C::D



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5. Which of the following statements is/are correct ?

- A. When a Lassaigne's solution is heated with dil. HNO_3 , cooled and $AgNO_3$ Solution is added, a NH_4OH , indicates the presence of iodine in organic compound.
- B. When $(CH_3COO)_4 Pb$ solution is added to the acidified Lassaigne's extract of an organic compound, a black precipitate of PbS is formed.
- C. An organic compound containing N, on heating with conc. H_2SO_4 gives $(NH_4)_2SO_4$ which liberates NH_3 on treatment with excess of $NaOH$.
- D. The molecular mass of non-volatile organic compound is determined either by Dumas method or by Victor Meyer's method.

Answer: B::C





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6. Which of the following statements is/are wrong

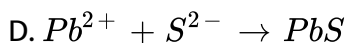
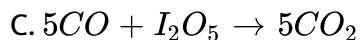
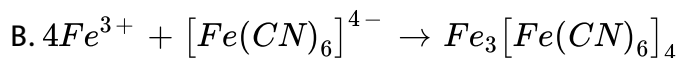
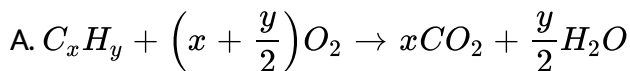
- A. The gas displaced in Victor Meyer's method is air
- B. The simplest formula that shows the ratio of the atoms of various elements present in the molecule is called the molecular formula
- C. Estimation of oxygen in an organic compound is also made by Lunge's method
- D. An organic monoacidic base B on reaction with H_2PtCl_6 forms an insoluble compound $B_2H_2PtCl_6$

Answer: B



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7. Which of the following reactions is/are correct ?



Answer: C::D



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Additional Practice Exercise Level II Lecture Sheet Advanced Linked Comprehension Type Questions

1. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Volume of O_2 used is

A. 70ml

B. 75ml

C. 80ml

D. 85ml

Answer: C



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2. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Volume of residual nitrogen is

A. 300ml

B. 310ml

C. 320ml

D. 330ml

Answer: C



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3. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Volume of CO_2 is

A. 40ml

B. 60ml

C. 80ml

D. 100ml

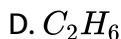
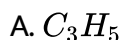
Answer: B



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4. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be 380 ml.

Formula of the hydrocarbon is



Answer: C

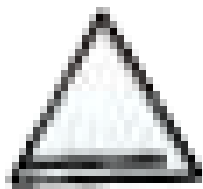
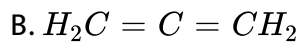
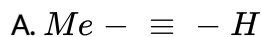


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5. Twenty millilitres of a gaseous hydrocarbon required 400 ml of air for complete combustion. The air contains 20% by volume of oxygen. The volume of gaseous mixture after explosion and cooling was found to be

380 ml.

Formula of the hydrocarbon is



C.

D. All

Answer: D



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Additional Practice Exercise Level II Lecture Sheet Advanced Matrix Matching Type Questions

1. Match the following columns

**Column-I
(Compounds)**

A) 1° and 2° amines

B) Ethanal and ethanol

C) $(C_2H_5)_2NH$ and butanol

D) $(C_2H_5)_2C=O$ and C_2H_5COOH

**Column-II
(reagent for separation)**

P) $NaSO_3$

Q) Hinsberg reagent($PhSO_2Cl$) or

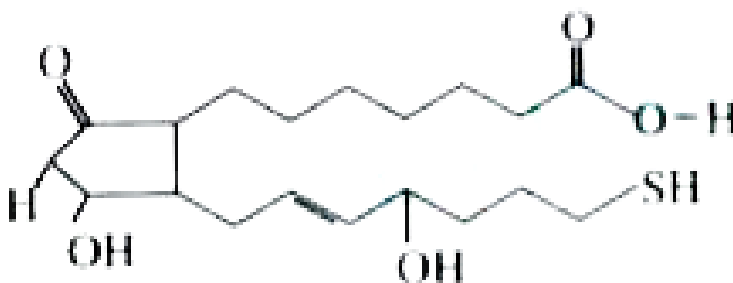


R) Dil. $NaOH$ and distillation

S) Dil. H_2SO_4 and steam distillation

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Additional Practice Exercise Level II Lecture Sheet Advanced Integer Type Questions



1.

How many types of functional groups are present in given compound

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2. How many secondary carbons present in the given compound



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