

## HINTS & SOLUTIONS

### EXERCISE - 1

#### Single Choice

- $$\begin{array}{c} \text{H} \\ | \\ \text{H}-\text{C} \equiv \text{C} \begin{array}{l} \nearrow \sigma \\ \searrow \sigma' \end{array} \\ | \quad \quad \quad | \\ \text{H} \quad \quad \quad \text{H} \\ \text{sp} \quad \quad \quad \text{sp}^2 \end{array}$$
- $$\text{HC} \equiv \text{C} \begin{array}{c} \text{sp} \\ | \end{array} \text{CH}_2 \begin{array}{c} \text{sp}^3 \\ | \end{array} \text{CH} = \text{CH} - \text{CH}_3$$
- $$\text{H}-\text{C} \equiv \text{C}-\text{C}-\text{C}(=\text{O})-\text{CH}=\text{CH}-\text{C} \equiv \text{N}$$

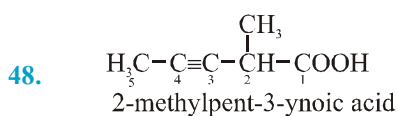
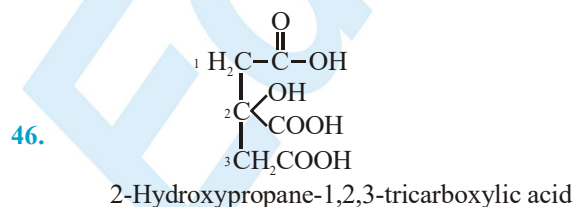
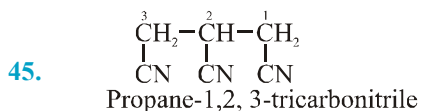
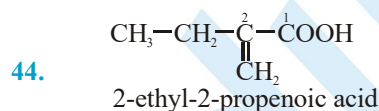
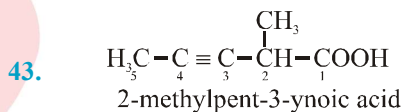
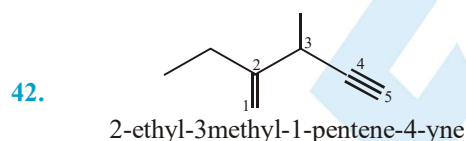
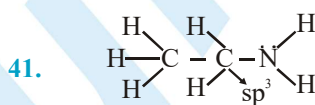
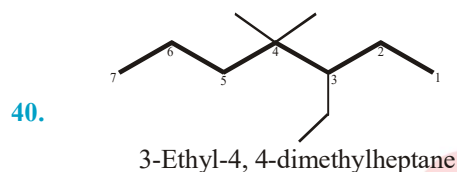
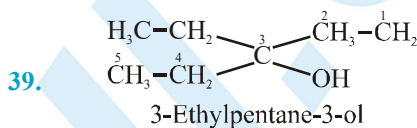
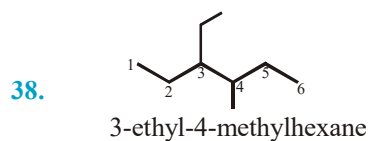
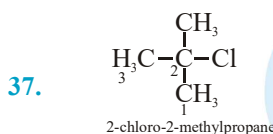
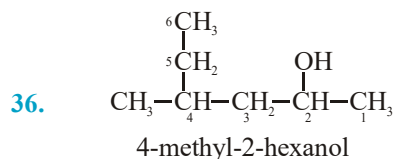
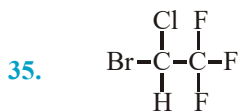
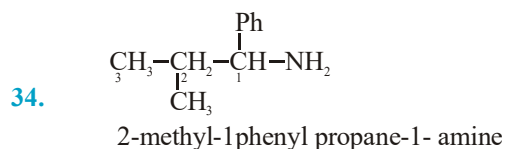
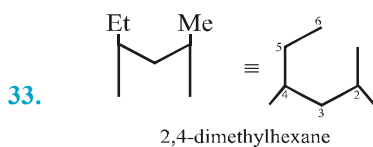
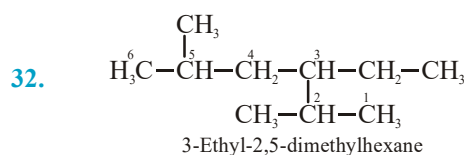
Acetynilic group
- Furan      Thiophene
- $$\text{H}-\text{C}(=\text{O})-\text{O}-\text{CH}_3$$
- 
- 1° - Carbon    3  
2° - Carbon    3  
3° - Carbon    3
- 2° - C  $\Rightarrow$  2
- $$\text{H}_2\text{C} = \text{CH} - \underset{\text{CH}_2-\text{CH}_3}{\text{C}} - \text{CH}_3$$

3-methyl-2-pentene
- $$\text{H}_2\text{C} = \underset{2}{\text{CH}} - \underset{3}{\text{CH}_2} - \underset{4}{\text{CH}_2} - \underset{5}{\text{C}} \equiv \underset{6}{\text{CH}}$$

1-Hexene-5-yne
- $$\begin{array}{c} \text{CH}_3 \\ | \\ \text{H}_3\text{C}-\text{C}-\text{CH}=\text{CH}_2 \\ | \\ \text{CH}_3 \end{array}$$

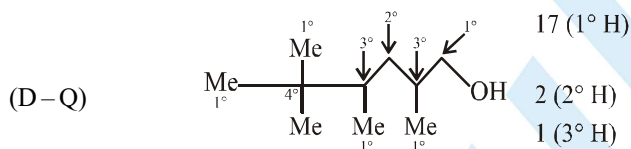
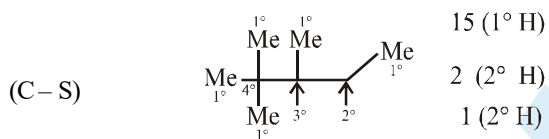
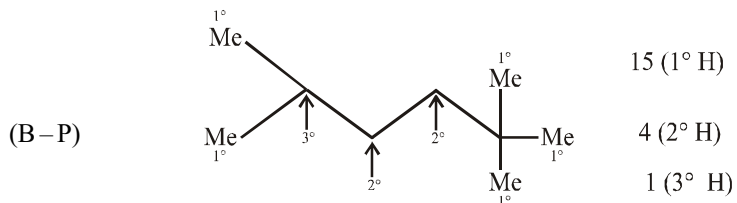
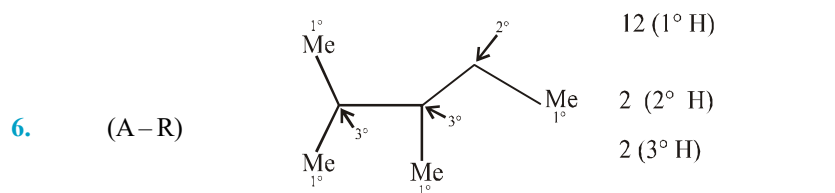
3,3-dimethyl-1-butene
- 3,5-diethyl-4,5-dimethyl-5-[1-methylethyl] hept-3-ene
- Compound having hetero-atom (as O, N, S etc.) in cycle are known as heterocyclic compound.
- Ethyl      Methyl      Vinyl
- $$\text{H}_3\text{C} - \text{CH} = \text{CH} - \text{C} \equiv \text{CH}$$

Pent-3-ene-1-yne

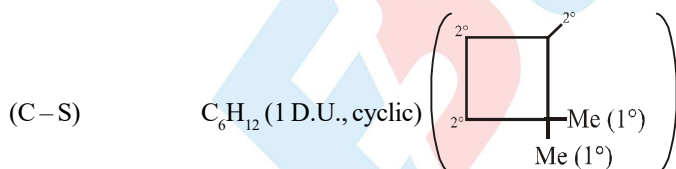


EXERCISE - 3

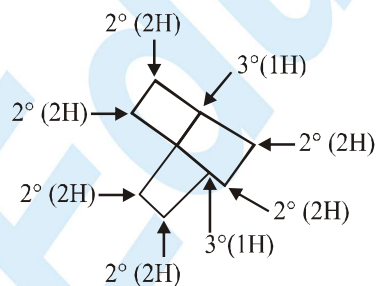
Part # I : Matrix Match Type



8. (A-Q)  $C_8H_{18}$ , saturated alkane.  
(B-R)  $C_6H_{12}$  (1 D.U. means alkene or cyclic) It can be only (r).



- (D-P)  $C_8H_{14}$  (1 D.U., cyclic)  
 $2^\circ$  (12 H)  $1^\circ$  (H)

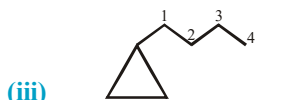




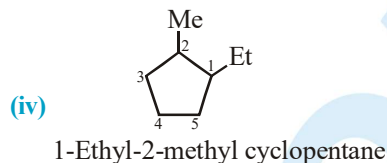
Propyl cyclobutane



Propyl cyclopropane



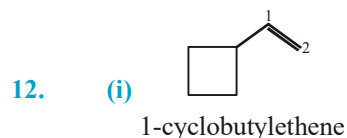
1-Cyclopropyl butane



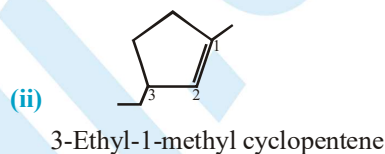
1-Ethyl-2-methyl cyclopentane

10. (a) 1, 5-Dimethylcyclopent-1-ene  
(b) 1-Cyclohexyl-4-cyclopropylbutane  
(c) 1-(1,1-Dimethylethyl)-2-(1-methylethyl) cyclopentane

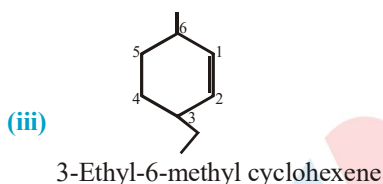
11. (a) ring (b) side chain (c) ring (d) ring  
(e) side chain (f) side chain



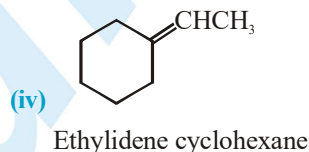
1-cyclobutylethene



3-Ethyl-1-methyl cyclopentene



3-Ethyl-6-methyl cyclohexene



Ethylidene cyclohexane

13. (a) 1, 3, 5 Trihexylcyclohexane  
(b) 3 - Cyclopropylprop-1-ene  
(b) Cyclohexylcyclohexane  
(d) 1-(Hex-3-enyl)cyclohex-1-ene

14. (a) Methoxyethane  
(c) Epoxyethane  
(b) Ethoxyethane  
(d) 1-chloro-2, 3-epoxypropane

15. (a) 4-Cyclohexylbut-3-en-2-one  
(c) 2-Methylpropane-2-ol  
(b) 2-(2-hydroxybutyl) cyclohexan-1-ol  
(d) 3-Chlorobutan-1-ol

16. (a) 1-Chloro-5-methylhexan-2-one  
(c) 2-Methoxy-N-methylethan-1-amine  
(b) 2-Bromo-2-chloro-5-fluoro-4-methylheptane  
(d) 3-Bromo-2-chloro-5-methyloctane

17. (a) Ethanoic 2-methylpropanoic anhydride  
(c) Pent-2-enedioic anhydride  
(b) Benzenecarboxylic anhydride  
(d) Cyclohexane-1, 2-dicarboxylic anhydride

18. (a) Methyl-2-ethylbutanoate  
(c) 3,3 Dimethyl-2-(1-methylethyl)butanamide  
(b) Ethyl-3-methylpent-4-en-1-oate

33. 
$$\begin{array}{c} \text{CH}_2 = \overset{1}{\text{C}} - \overset{2}{\text{C}} - \overset{3}{\text{CH}_2} - \overset{4}{\text{CH}} - \overset{5}{\text{CH}_3} \\ \quad \quad \quad | \quad \quad \quad | \\ \text{CH}_3 - \text{CH} - \text{CH}_3 \quad \text{CH}_3 \end{array}$$
  
2-Isopropyl-4-methylpentene  
or 4-Methyl-2-(methyl ethyl) pentene
34. [5-Methyl hepta-1,3,6-triene]
35. 
$$\text{CH}_3 - \text{CH} = \underset{\text{CH}_2 - \text{CH}_3}{\text{C}} - \text{CH}_2 - \text{OH}$$
  
2-Ethylbut-2-en-1-ol ]
36. 
$$\text{CH}_3 - \overset{\text{O}}{\underset{\text{O}}{\text{C}}} - \text{CH}_2 - \overset{\text{O}}{\underset{\text{O}}{\text{C}}} - \text{CH}_3$$
  
Pentane-2, 4-dione ]
37. 
$$\text{CH}_2 = \overset{4}{\text{C}}\text{H} - \overset{3}{\text{C}}\text{H} - \overset{2}{\underset{\text{O}}{\text{C}}} - \overset{1}{\underset{\text{OH}}{\text{CH}_2}}$$
  
1-Hydroxybut-3-en-2-one]
38. 
$$\text{CH}_2 = \underset{6}{\text{C}}\text{H} - \underset{5}{\text{C}}\text{H} - \underset{4}{\underset{\text{OH}}{\text{C}}} - \underset{3}{\underset{\text{O}}{\text{C}}} - \underset{2}{\text{C}} \equiv \underset{1}{\text{CH}}$$
  
4-hydroxyhex-5-en-1-yn-3-one ]
39. [2,2,6,7-tetramethyloctane]  
41. [1,2-epoxy propane ]  
43. [1,3,4-trimethyl-1-cyclobutene]  
45. [Cyclopropanecarboxylic acid]  
47. [1-Cyclohexyl-1-propanone]  
49. [Ethyl cyclohexanecarboxylate]  
51. [cyclopent-2-en-1-one]  
52. [Methyl-2-methoxy-6-methyl-3-cyclohexene carboxylate]  
53. [2-bromo-2-methyl cyclopentanone]  
54. [Bicyclo(2.2.1)heptane]  
55. [Bicyclo (3.1.0) hexane]  
56. [spiro (2.5) octane]  
57. [4-isopropyl-1-propyl-1-cyclohexene or 4-(1-methylethyl)-1-propyl cyclohexene]  
58. [4-chloro-1-cyclopentyl pentane-2-one]  
59. [3-ethoxy-1(1-nitrocyclohexyl)-hex-4-en-1-one]  
60. [1,3-diphenyl-1, 4-pentadiene]
40. [3-Ethyl-4,6-dimethyloctane]  
42. [1,3-cyclobutadiene]  
44. [1-ethyl-2-methylcyclopentane]  
46. [Methylene cyclohexane]  
48. [5-amino-6-(1-methylpropyl)cyclo-hex-2-enol]  
50. [1-(3-butenyl)cyclopentene]