

1. Draw structural formula diagrams for the following compounds:

2-methyl propane-1,2-diol	/3	2,3-dichloro butane	/2
3-ethyl hexan-2-one	/3	glycerol (propane-1,2,3-triol)	/2
methanal	/2	2,3-dibromo pent-2-ene	/4
2-iodo hexandioic acid	/3	2-methyl hept-3-yne	/3
ethanamine	/2	sodium propanoate	/3

2. Write names for each of the following :

a) $\begin{array}{ccccccc} & \text{CH}_3 & & & & \text{O} & \\ & & & & & & \\ \text{CH}_2 & - & \text{CH} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{C} & \text{H} \\ & & & & & & & & & \\ & \text{CH}_3 & & & & & & & & \end{array}$ /2	d) $\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH}_2 - \text{N} \\ \\ \text{CH}_3 \end{array}$ /3
b) $\begin{array}{ccccccc} & & \text{CH}_3 & & & & \\ & & & & & & \\ \text{CH}_3 & - & \text{CH}_2 & - & \text{CH} & - & \text{NH} & - & \text{CH}_2 & - & \text{CH}_3 \end{array}$ /3	e) $\begin{array}{ccccccc} & & & & \text{O} & & \\ & & & & & & \\ \text{CH}_3 & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{C} & \text{O}^- \text{Na}^+ \end{array}$ /2
c) $\begin{array}{ccccccc} & & \text{O} & & & & \\ & & & & & & \\ \text{CH}_3 & - & \text{CH}_2 & - & \text{C} & \text{O} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{CH}_3 \end{array}$ /2	f) $\begin{array}{ccccccc} & & \text{CH}_3 & & & & \\ & & & & & & \\ & & \text{CH} & - & \text{CH}_2 & - & \text{CH}_2 & - & \text{CH} & - & \text{CH}_3 \\ & & & & & & & & & & \\ \text{CH}_3 & - & \text{CH}_2 & - & \text{N} & & & & & & \\ & & & & & & & & & & \\ & & \text{CH}_3 & & & & & & & & \end{array}$ /4

3. Explain how could you distinguish between a sample of hexane and a sample of decane. /2
4. A carboxylic acid and its isomeric ester tend to both be clear liquids at room temperature.
- (a) State what is meant by the term 'isomer'. /1
- (b) State and explain the property that would allow a carboxylic acid to be distinguished from its isomeric ester in a school laboratory. /3
5. Ethanoic acid has a boiling point of 118°C and propan-1-ol has a boiling point of 97°C, although they have similar molecular weights. Explain this difference in properties. /3

TOTAL /52