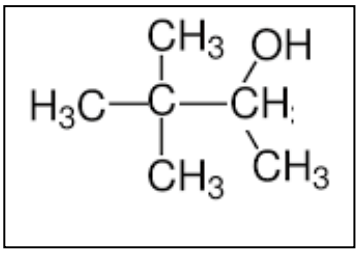
Name

40

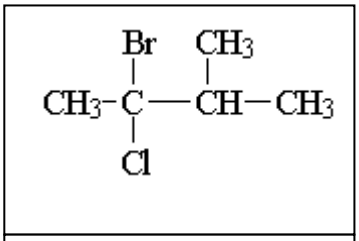
# Year 11 Organic Chemistry test

1) Name the following compounds

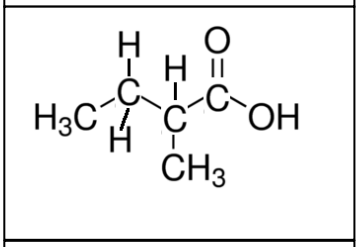
a) 3,3-dimethylbutan-2-ol



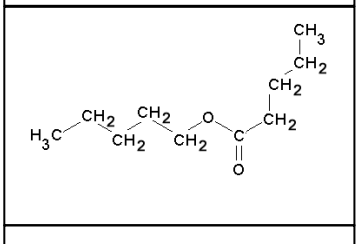
b) 2-bromo-2-chloro-3-methylbutane



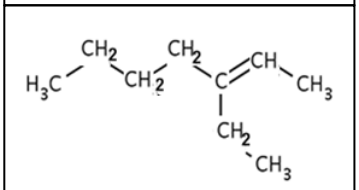
c) 2-methylbutanoic acid



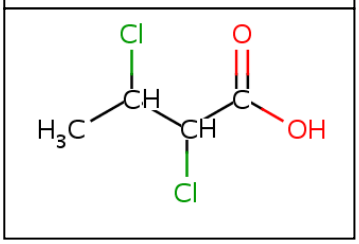
d) pentyl pentanoate



e) 3-ethylhept-2-ene

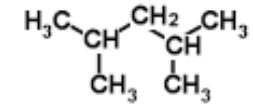


f) 2,3,-dichlorobutanoic acid

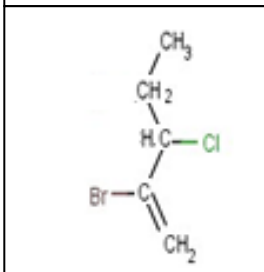


2) Draw structural formulae of the following compounds

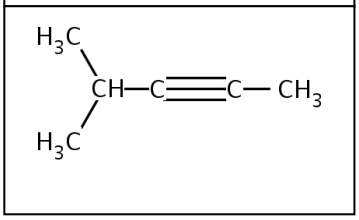
a) 2,4-dimethylpentane



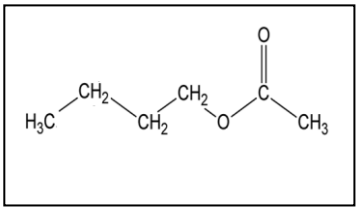
b) 2-bromo-3-chloropent-1-ene



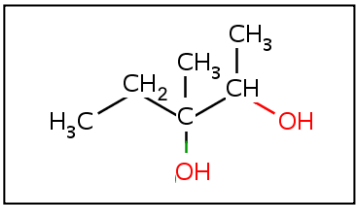
c) 4-methylpent-2-yne



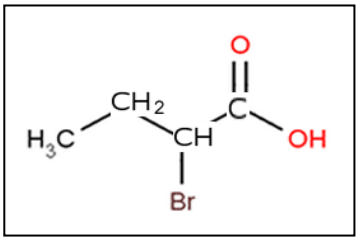
d) Butyl ethanoate



e) 3-chloropent-2,3-diol

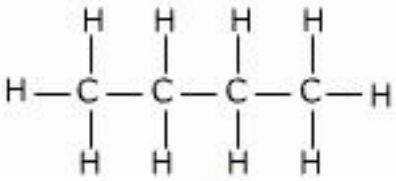


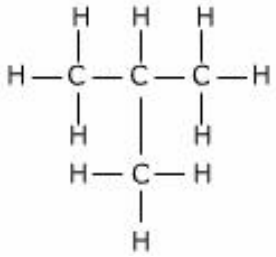
f) 2-bromobutanoic acid



3) Name and draw the structural formula for two isomers with the molecular formula $C_4H_{10}$

butane





2-methylpropane

4 marks

4) A 400.0 gram sample of hexane is obtained. What mass of the sample is due to carbon? Show all working out.

$C_6H_{14}$ => 86

% composition due to carbon is (72/86) X 100 = 83.72%

Percent of 400.0 g due to carbon is (83.72/100) X 400 = 334.9 g

2 marks

5) Name all the possible products from an addition reaction between:

a) Propene and $Cl_2$ gas.

1,2-dichloropropane

b) But-2-ene and HCl gas

2-chlorobutane

3 marks

6) Write a balanced chemical equation for the combustion of butane gas.

$2C_4H_{10}(g) + 13O_2(g) => 8CO_2(g) + 10H_2O(g)$

1 mark for states

1 mark for balanced equation

1 mark for correct formulae

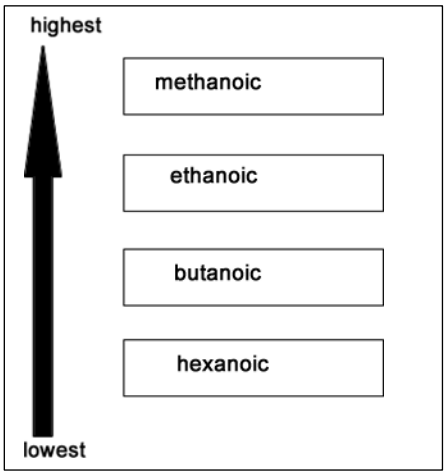
3 marks

7) What reactants must be mixed to form butyl propanoate.

Butan-1-ol and propanoic acid

2 marks

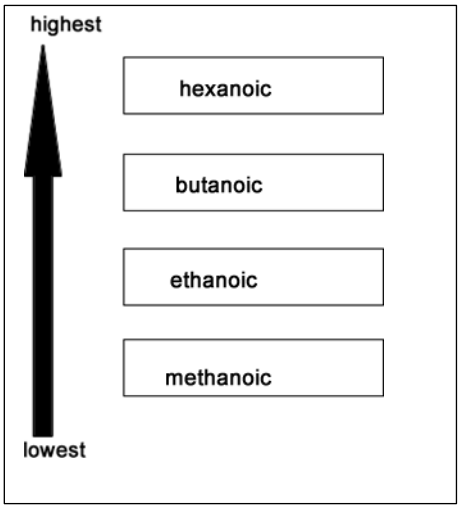
8) Place the following in order of increasing solubility in water.
Hexanoic acid, methanoic acid, ethanoic acid, butanoic acid




All compounds have a hydroxyl (OH) functional group, however, they differ in the size of the carbon chain. The longer the carbon chain the less soluble the molecule.

4 marks

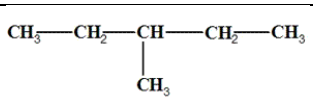
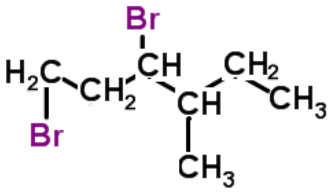
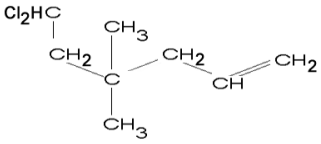
9) Place the following in order of increasing melting temperature.
Hexan-1-ol, methanol, ethanol, butan-1-ol




All compounds have a hydroxyl (OH) functional group, however, they differ in the size of the carbon chain. The bigger the molecule the greater the dispersion forces acting between the molecules.

4 marks

10) Complete the table below.

| Name | Structural formula | Semi-structural formula |
|---|---|---|
| 3-methylpentane |  | $CH_3CH_2CH(CH_3)CH_2CH_3$ |
| 1,3-dibromo-4-methylhexane |  | $CH_2BrCH_2CHBrCH(CH_3)CH_2CH_3$ |
| 6,6-dichloro-4,4-dimethyl hex-1-ene |  | $CHCl_2CH_2C(CH_3)_2CH_2CHCH_2$ |

6 marks