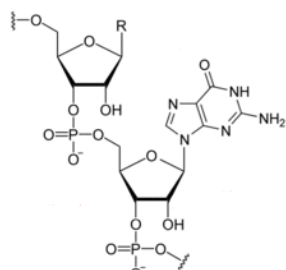
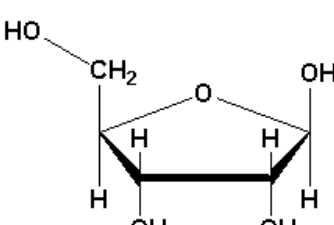
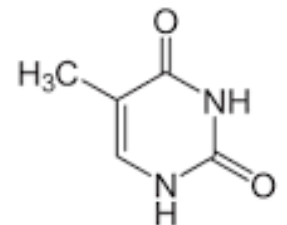
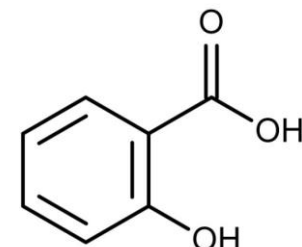
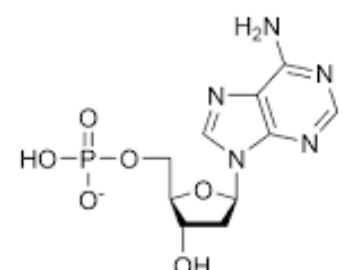
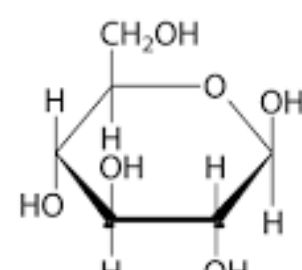
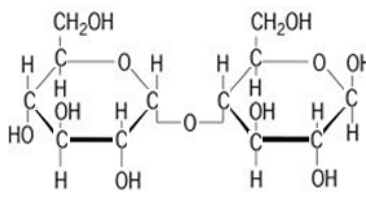
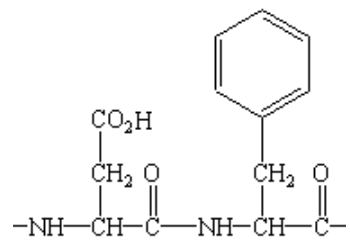
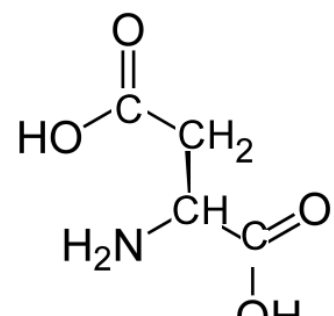
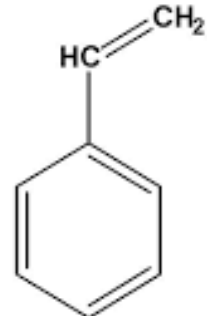


<p>A</p> $\text{C}_{13}\text{H}_{27}-\text{C}\begin{matrix} \text{O} \\ \parallel \\ \text{O}-\text{H} \end{matrix}$	<p>B</p> 	<p>C</p> $\text{C}_{17}\text{H}_{27}-\text{C}\begin{matrix} \text{O} \\ \parallel \\ \text{O}-\text{H} \end{matrix}$
<p>D</p> $\text{C}_{17}\text{H}_{29}-\text{C}\begin{matrix} \text{O} \\ \parallel \\ \text{O}-\text{CH}_3 \end{matrix}$	<p>E</p> 	<p>F</p> $\text{C}_{17}\text{H}_{29}-\text{C}\begin{matrix} \text{O} \\ \parallel \\ \text{O}-\text{C}_5\text{H}_9 \end{matrix}$
<p>G</p> 	<p>H</p> 	<p>I</p> $\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{H} \end{array}$
<p>J</p> 	<p>K</p> 	<p>L</p> 
<p>M</p> 	<p>N</p> 	<p>O</p> 

a) Which molecules is the product of a condensation reaction?

A **B** C **D** E **F** G H I **J** K **L** **M** N O

b) Which molecules are possible products of the hydrolysis of a saturated triglyceride.?

A B C D E F G H **I** J K L M N O

c) Which molecules can be used directly as an industrial renewable energy source?

A B C **D** E F G H I J K L M N O

d) Which molecules can be found in DNA?

A B C D E F G H I **J** K L M N O

e) Which molecule can undergo addition polymerisation?

A B C D E F G H I J K L M N **O**

f) Which molecule can act as a buffer?

A B C D E F G H I J K L M **N** O

g) 0.001 mole of which molecule reacts with 0.001 mole of NaOH and 0.480 grams of Br₂

A B **C** D E F G H I J K L M N O

h) Which molecule was formed from a condensation polymerisation reaction?

A B C D E F G H I J K L **M** N O

i) Which molecule is a monomer of DNA but not RNA?

A B C D E F G H I **J** K L M N O

j) Which molecule can form a negative charged polymer?

A B C D E F G H I **J** K L M N O

k) Upon hydrolysis which molecule produces an unsaturated fatty acid and a saturated alcohol?

A B C D E **F** G H I J K L M N O

l) Upon hydrolysis which molecule produces an unsaturated fatty acid and an unsaturated alcohol?

A B C **D** E F G H I J K L M N O

m) Which molecule will react with methanol to produce a saturated methyl ester?

A B C D E F G H I J K L M N O

n) Which molecule is a reactant for anaerobic fermentation?

A B C D E F G H I J **K** L M N O

o) Which molecule can be broken down by enzyme action into a renewable energy source?

A B C D E F G H I J **K** L M N O

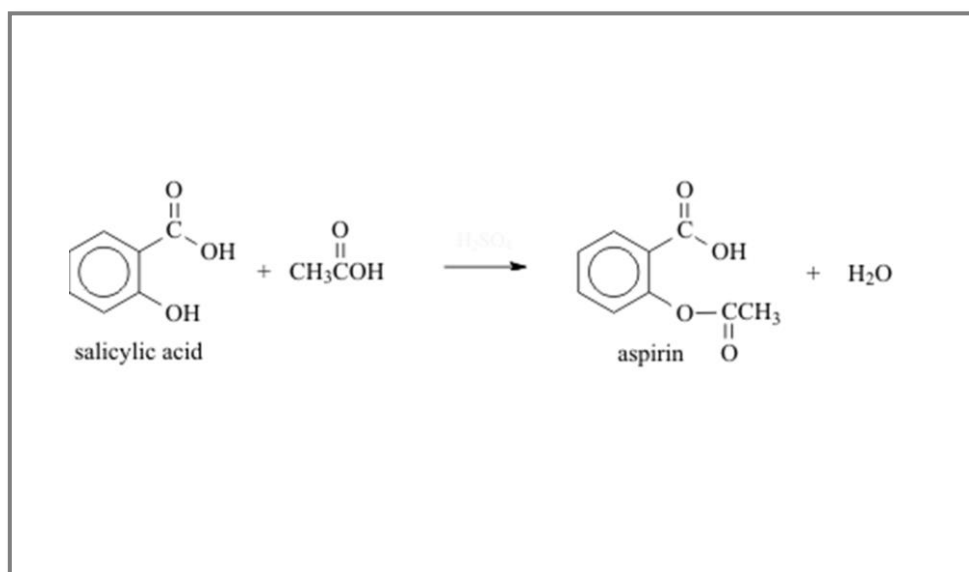
p) What is the systematic name of molecule "N"?

2-aminobutanedioic acid

q) What two molecules, not shown on page 1, formed M?

Phenylalanine and aspartic acid

r) Give a balanced chemical equation, using structural formulae, of the reaction between molecule H and ethanoic acid.



s) What mass of compound C will react exactly with 0.64 grams of Br₂?

Compound C is an unsaturated fatty acid with 4 double bonds.

For every one molecule of the fatty acid we have 4 molecules of Br₂ that can react in an addition reaction.

Step 1 find the mol of Br₂

=> 0.64 / 160 = 0.004 mol

Step 2 find the mol of the fatty acid

=> 0.001

Step 3 find the mass of the fatty acid

=> mass = mol X formula mass = 0.001 X 276 = 0.28

t) Which molecule has a similar ^{13}C NMR to the one shown on the right?

I = glycerol

The NMR spectrum shows two carbon environments.
Glycerol is the only molecule with two carbon environments.

