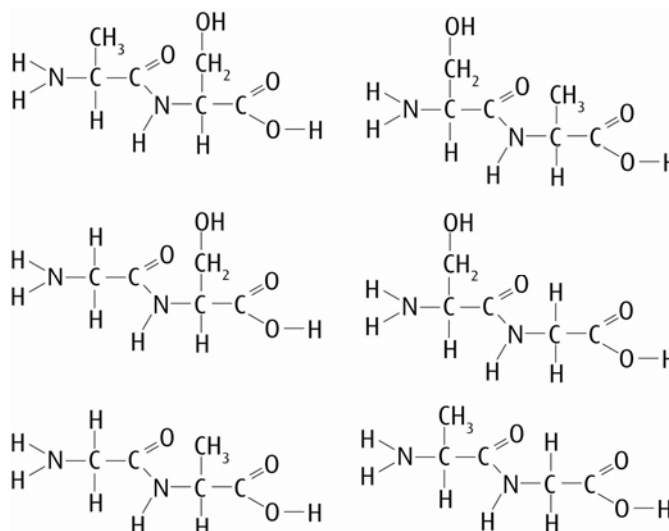
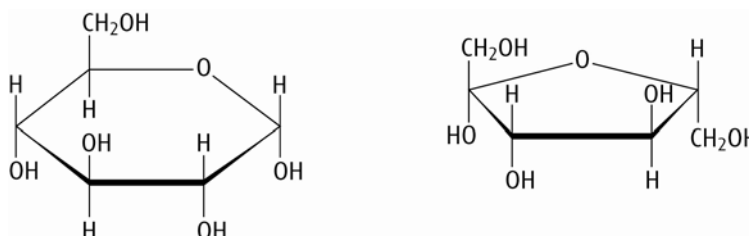


Marking scheme for Core Worksheet – Option B

- 1 A $E = 200.0 \times 4.18 \times (37.8 - 18.5) = 16134.8 \text{ J}$ [1]
 $\frac{100}{10} \times \frac{16134.8}{1000} = 161 \text{ kJ per 100 g}$ [1]
- B $E = 500.0 \times 4.18 \times (65.8 - 17.3) = 101365 \text{ J}$ [1]
 $\frac{100}{13.2} \times \frac{101365}{1000} = 768 \text{ kJ per 100 g}$ [1]
- C $E = 1000.0 \times 4.18 \times (71.2 - 19.7) = 215270 \text{ J}$ [1]
 $\frac{100}{25.7} \times \frac{215270}{1000} = 838 \text{ kJ per 100 g}$ [1]
- 2 a 1 mark per dipeptide [6]



- b water [1]
 c amide [1]
- 3 a 1 mark per monosaccharide [2]



- b molecular formula for both monosaccharides is $\text{C}_6\text{H}_{12}\text{O}_6$ [1]
 empirical formula for both monosaccharides is CH_2O [1]

- 4 a** X has 0 C=C bonds [1]
Y has 1 C=C bond [1]
Z has 3 C=C bonds [1]
- b** iodine number for X = 0 [1]
iodine number for Y
one mole of iodine reacts with one mole of fatty acid, therefore mass of I₂ = 253.80 g [1]
M_r of fatty acid is 282.52 [1]
mass of I₂ that reacts with 100 g is $\frac{253.80}{282.52} \times 100$
iodine number = 89.8 [1]
iodine number of Z
three moles of iodine react with one mole of fatty acid, therefore mass of I₂
= 3 × 253.80 g,
= 761.40 g [1]
M_r of fatty acid is 278.48 [1]
mass of I₂ that reacts with 100 g is $\frac{761.40}{278.48} \times 100$
iodine number = 273.4 [1]
- 5** insoluble in water/fat soluble [1]
mostly non-polar hydrocarbon chains and rings/only 1 OH group [1]