BIOLOGY
Mark Scheme

LM3 - TRIGLYCERIDES (PART 2)

Q1) a) A fatty acid that contains at least one double/triple bond **(1)**

b) C and D **(1 mark for each correct)**

Q2) a) Saturated chains are straight **(1)** So saturated lipid molecules can pack closer together **(1)** Therefore their intermolecular forces are stronger/require more energy to break **(1)**

b) Oils are liquid at room temperature **(1)** Therefore the lipid molecules must be further apart/have weaker intermolecular forces **(1)**

Q3) a) C **(1)**

b) Lipids are very non-polar **(1)** So they cannot overcome the hydrogen bonds holding the water molecules together **(1)** Therefore water cannot become 'free' to surround the lipid molecules and dissolve them **(1)** Low polarity of lipids means water molecules have little attraction to them **(1)** **(Max 3)**

c) Ethanol extracts any lipids in the food sample **(1)** By dissolving them **(1)**

Q4) a) A **(1)**

b) Human enzymes do not have the right shape active site to bind to trans-fatty acids **(1)** Therefore they cannot be broken down/digested **(1)**

c) They can build up in blood vessels over time **(1)** Increasing risk of health complications (e.g. coronary heart disease or strokes) due to restricted blood flow **(1)**

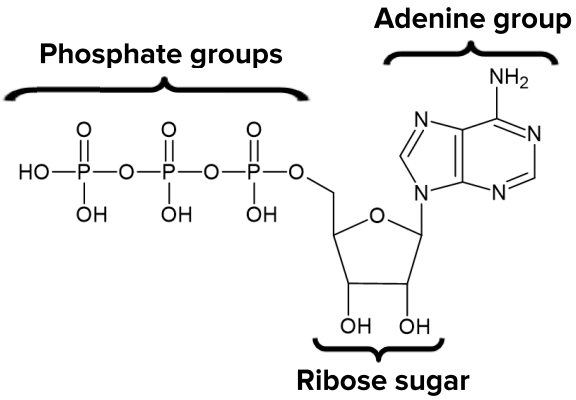
Q5) a) Energy, phospholipid bilayer, glycolipids, hormones etc. **(1 mark each up to max of 2)**

b) They release around twice the energy per unit mass compared to carbohydrates and proteins **(1)**

c) Hydrolysis reactions **(1)**

Q6) a) Energy is released by the reformation of some bonds after the initial breakage **(1)** The energy released is greater than what is required to break the bonds **(1)** So a net release of energy **(1)**

b)



(1 mark for each correctly labelled group)

Q7) a) Agree **(1)** Saturated lipids have straight chains and can pack together closer **(1)** Therefore their intermolecular forces are stronger giving them a higher melting point **(1)**

Allow converse arguments for unsaturated lipids.

b) A - False B - True C - False **(1 mark for each correct)**