

BIOLOGY

Mark Scheme

LM7 - PHOSPHOLIPIDS

Q1)

- a) C - Phospholipids have 3 fatty acid chains **(1)**
- b) The phospholipid head is hydrophilic **(1)**
- c) a – Fatty acid **(1)** b – Phosphate group **(1)** c – Glycerol **(1)**

Q2)

- a) Saturated is when a molecule only has single bonds. **(1)** An unsaturated molecule contains at least one double/ triple bond **(1)**

- b)  **(1)** Image from Lipid Maps - <https://www.lipidmaps.org/data/LMSDRecord.php?LMID=LMFA01010000>

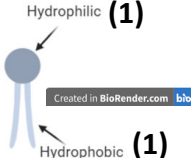
- c) 'R group' in fatty acids represents a long chain of carbons **(1)**

Q3)

- a) Glycerol is a hydrophilic molecule **(1)** and can therefore form intermolecular forces with water molecules **(1)**
- b) B – It is generally hydrophobic **(1)**

Q4)

- a) Hydrophobic when molecules repel water away from itself/ 'water – hating' **(1)** Hydrophilic is when molecules are attracted to water molecules/ 'water – loving' **(1)**

- b)  **(1)**

- c) The phospholipid tails face inwards as they are hydrophobic **(1)** which keeps them away from water molecules **(1)**

Q5)

- a) The phospholipid tails (due to being hydrophobic) cluster together away from water **(1)**. As well as this the phospholipid heads interact with the aqueous environment **(1)**
- b) A – Phospholipids are amphipathic molecules **(1)**
- c) The phospholipid bilayer allows the cell to be partially permeable acting as a barrier **(1)** It is able to do this as the hydrophobic tails repel water and ions away from the membrane **(1)** This is important as it ensures certain substances remain out/in the cell **(1)** regulating the contents of the cell **(1)**