

BIOLOGY
Mark Scheme**LM11- SIMPLE & FACILITATED DIFFUSION****Q1)**

- a) Diffusion is the net movement of molecules/ ions **(1)** from a region of high concentration **(1)** to a region of low concentration **(1)**
- b) Diffusion is important in cells as it transports substances between cells and their environment **(1)** This ensures that cells receive essential substances required for survival **(1)** **OR** This ensures that waste products leave the cell **(1)**

[Maximum of 2 marks]**Q2)**

- a) They are both the net movement of molecules from a region of high concentration to a region of low concentration **(1)** **OR** They are both passive processes (do not require cellular energy) **(1)**

[Maximum of 1 mark]

- b) In facilitated diffusion, transmembrane proteins (channel proteins, carrier proteins etc.) are used to transport molecules **(1)**
- c) Large, hydrophilic, and charged molecules **(1)**
- d) The phospholipid bilayer is impermeable to these molecules **(1)** because they are too large to diffuse through/ are repelled by the hydrophobic fatty acid tails **(1)**

Q3)

- a) A higher temperature increases the rate of diffusion **(1)** Molecules will have more kinetic energy **(1)** and can therefore move faster **(1)**
- b) Thicker membrane will decrease the rate of diffusion **(1)** The diffusion path is greater **(1)** and therefore molecules will have to travel more **(1)**
- c) The concentration difference between two regions **(1)** **OR** The mass of a substance **(1)** **OR** The number of transport proteins within the membrane **(1)**

[Maximum of 1 mark]