BIOLOGY
Mark Scheme

LM13 - ACTIVE TRANSPORT & BULK TRANSPORT

Q1)

a) Active transport is the movement of molecules/ions from a region of low concentration **(1)** to a region of high concentration **(1)** against the concentration gradient, requiring energy **(1)**

b) A **(1)** D **(1)**

c) Molecules in active transport use transmembrane proteins **(1)** while in simple diffusion molecules can diffuse through the membrane **(1)** Active transport happens against the concentration gradient **(1)** while simple diffusion happens down the concentration gradient (**1)**

Q2)

a) To be able to change shape **(1)**

b) ATP is hydrolysed into ADP and a phosphate **(1)** The phosphate molecule then binds to the carrier protein, providing energy **(1)**

c) Glucose will bind to the receptors on the carrier protein **(1)** Phosphate molecule will also bind to the carrier protein on the other side **(1)** This provides energy and the carrier protein will change shape to allow glucose through **(1)**

Q3)

a) Bulk transport is required to transport large substances in and out of the cell **(1)** which cannot diffuse through the cell membrane and transmembrane proteins **(1)**

b) Energy is required for cytoskeleton transporting vesicles (which contain substances) **(1)**

c) Endocytosis is the bulk transport of substances IN to the cell **(1)**

d) The cell surface bends inwards when it comes into contact with a molecule on the outside **(1)** the membrane closes in around the molecule **(1)** forming a vesicle **(1)** This vesicle then moves into the cytoplasm **(1)**

Q4)

a) Endocytosis transports substances into the cell **(1)** while exocytosis transports substances out of the cell **(1)**

b) Vesicles, which contain the substance, fuse with the cell membrane **(1)** They are then released out of the cell **(1)**

c) B **(1)**