

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Mark Schemes

Q1.

- (i) In all cases reject 'energy' unless qualified

A – facilitated diffusion as transport protein needed but ATP not needed;
B – active transport 'energy' unless as (transport protein and) ATP needed; qualified
C – (simple) diffusion as neither ATP nor transport protein needed;
(Ignore all references to concentration gradients)

3

- (ii) creates low concentration of amino acids / Na^+ in cell concentration gradient established between lumen and cell (of amino acids or Na^+)

2

[5]

Q2.

- (a) Large surface area to volume ratio;
For diffusion;
OR
Flat / thin;
So oxygen can reach all haemoglobin / centre rapidly / short pathway;

max 2

- (b) (i) Partially permeable / allows water through but not sucrose;
Accept semi-permeable / selectively permeable.

1

- (ii) Phospholipid (in membrane) / bilayer dissolved / broken down;
Allows haemoglobin / contents to leak out;

2

[5]

Q3.

- (a) Diaphragm (muscle) contracts;
Flattens / Increases volume of chest;
Reduced pressure allows air to enter;
3
- (b) Allows comparison;
As organs differ in size / as larger organs will need more blood;
2
- (c) 2 marks for 40.91 / 40.9 / 41
1 mark for 59.09 / 59.1 / 59
2
- (d) (i) Some oxygen still in lungs (which will enter the blood) /
removal of carbon dioxide (from blood);
1
- (ii) More blood available for other organs;
Supplying oxygen / glucose / removing carbon dioxide;
OR
Diaphragm muscles not contracting (as not breathing);
Will not require (as much) oxygen / glucose;
2

[10]