Nutrition

Mark Scheme 3

Level	IGCSE(9-1)
Subject	Biology
Exam Board	Edexcel IGCSE
Module	Double Award (Paper 1B)
Topic	Structure and Functions in Living Organisms
Sub-Topic	Nutrition
Booklet	Mark Scheme 3

Time Allowed: **66 minutes**

Score: **/55**

Percentage: **/100**

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>1 (a)</td><td>
<table>
<tr><th>name of process</th><th>description of process</th></tr>
<tr><td><u>ingestion</u>;</td><td>food enters the mouth</td></tr>
<tr><td>digestion</td><td>break down <u>large</u> molecules / large molecules to small molecules / insoluble to soluble molecules;</td></tr>
<tr><td><u>absorption</u>;</td><td>small molecules move from small intestine into the blood</td></tr>
<tr><td><u>assimilation / synthesis</u>;</td><td>small food molecules are used to build large molecules</td></tr>
<tr><td>egestion</td><td>removal of undigested food / faeces / waste <u>from anus</u>;</td></tr>
</table>
</td><td></td><td>5</td></tr>
<tr><td>(b)</td><td>1. mylase;
2. starch;
3. maltose / glucose;
4. physical digestion / mechanical digestion / chewing eq;</td><td>ignore carbohydrase</td><td>3</td></tr>
<tr><td>(c)</td><td>(yes) A is starch;
B is glucose;</td><td>max 1 if A starch and B glucose but say no one is starch and one is glucose =1 mark</td><td>2</td></tr>
</table>

(Total for Question = 10 marks)

Question numbe	Answer	Notes	Marks
2 (a)	1. osmosis; 2. dilute solution to concentrated solution / eq; 3. root hair cells; 4. xylem; 5. transpiration / evaporation / diffusion of water from leaves;		4
(b)	(named) mineral / mineral ion / salt / eq;	ignore nutrients / nitrogen / phosphorus	1
(c) (i)	water/air-tight / dry leaves / cut under water / cut stem at an angle / eq;	ignore safety glasses / prevent falling over / parallax	1
(ii)	1. wind + how varied / eq;; eg fan at high and low speed 2. light + how varied / eq;; eg lamp close and far 3. humidity + how varied / eq;; eg clear plastic bag 4. temp + how varied / eq;; eg air conditioning / room thermostat	must state / describe method not just hot and cold room or light and dark max 2 for conditions	4

(Total for Question 12 = 10 marks)

Question number	Answer	Notes	Marks
3 (a)	cytoplasm; vacuole;		2
(b) (i)	1. shape; Then three from: 2. cell wall; 3. cell membrane; 4. nucleus; 5. vacuole; 6. cytoplasm;	labelled chloroplast max 3 line only labelled cell wall = 0 cell membrane as outside layer = 0	4
(ii)	1. large surface area; 2. permeable membrane; 3. osmosis / diffusion;	ignore thin / long ignore active transport	2
(c) (i)	chlorophyll / chloroplast;		1
(ii)	1. amino acids / protein / enzymes; 2. growth; 3. DNA / bases; 4. chlorophyll / eq;	ignore fertiliser ignore repair	2

(Total for Question 1 = 11 marks)

Question number	Answer	Notes	Marks
4 (a) (i)	A and G only;	both letters required in (i) and (iii)	1
(ii)	D only;		1
(iii)	B and F only;		1
(b)	1. long; 2. villi / villus / microvilli; 3. increase surface area / eq; 4. <u>diffusion</u> / <u>active transport</u> / <u>osmosis</u>; 5. <u>capillaries</u>; 6. (blood flow) maintains concentration gradient / maintains diffusion gradient; 7. thin walls / one cell thick / short distance; (applies to villi or capillaries) 8. <u>lacteal(s)</u>;	marks can be given for valid marking points on a diagram	5

Question number	Answer	Notes	Marks
4 (c) (i)	1. lack vitamin C / antioxidant / scurvy / bleeding gums / eq; 2. constipation / less food movement / bowel cancer / raised cholesterol / increase heart disease / eq;	allow if vitamin C in list	2
(c) (ii)	1. obesity / increase in weight / eq; 2. lockage of <u>arteries</u>; 3. high blood pressure / stroke / heart disease / raised cholesterol / eq; 4. diabetes; 5. joint damage / arthritis / eq; 6. gall stones;	ignore other blood vessels	3

(Total for Question = 13 marks)

Question number	Answer	Notes	Marks
5 (a) (i)	1. stop release of carbon dioxide; 2. respiration; 3. bacteria / fungi / microorganisms / decomposers / soil organisms / eq;	ignore evaporation of water	2
(ii)	control / to make a comparison / to show photosynthesis needs carbon dioxide / to show plants need carbon dioxide / difference due to carbon dioxide / eq;		1
(iii)	1. (sun)light; 2. water / moisture / humidity; 3. temperature; 4. soil / minerals / nutrients / ions / eq; 5. number of leaves / mass of plant / eq;		2

Question number	Answer	Notes	Marks
5 (b) (i)	1. <u>boil/heat/warm</u> in ethanol / alcohol; 2. test for starch;		2
(ii)	denature enzymes / eq;	reject kill enzymes	1
(iii)	high to low concentration / down concentration gradient / eq;	ignore along concentration gradient	1
(iv)	A = yellow / brown / orange; B = blue / black / blue black / eq;	ignore green / white red ignore purple	2

(Total for Question = 11 marks)