

# Nutrition

## Mark Scheme 4

<b>Level</b>	IGCSE(9-1)
<b>Subject</b>	Biology
<b>Exam Board</b>	Edexcel IGCSE
<b>Module</b>	Double Award (Paper 1B)
<b>Topic</b>	Structure and Functions in Living Organisms
<b>Sub-Topic</b>	Nutrition
<b>Booklet</b>	Mark Scheme 4

**Time Allowed:** 68 minutes

**Score:** /56

**Percentage:** /100

**Grade Boundaries:**

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

Question number	Answer	Notes	Marks
1 (a)	1 (feed on) dead / rotting / decomposing / eq; 2 enzyme(s); 3 extracellular / outside / external / eq; 4 <u>digests</u> / <u>digestion</u> / <u>digestive</u> ; 5 absorption / eq;		max 2
(b) (i)	D;		1
(ii)	B;		1
(c) (i)	chlorophyll;	ignore chloroplasts	1
(ii)	<u>carbon dioxide</u> + <u>water</u> ;  <u>glucose</u> + <u>oxygen</u> ;	ignore light / ignore chlorophyll  ignore energy  allow if correct symbols and correct formulae  ignore balancing	2
		<b>Total</b>	<b>7</b>

Question number	Answer	Notes	Marks
2 (a)	evaporation / loss of water / diffusion; surface of plant / stomata / from leaves / from plant / eq;		2
(b)	stop water loss (from soil) / stop evaporation (from soil) / water can only be lost through plant / eq;	ignore prevent water into soil	1
(c)	<u>kinetic</u> energy; molecules move faster / eq; stomata; open in light / close in dark; diffusion / evaporation / transpiration;	ignore guard cells	4
		<b>Total</b>	7

Question number	Answer	Notes	Marks
3	C different calcium / range of calcium / eq; O same age / strain / species / gender / eq; R several rats / different groups / eq; M1 mass / eq; M2 one day plus / eq; S1 + S2 same mass food / type of food / diet / water / same cage / temperature / eq;		6
		<b>Total</b>	6

Question number	Answer	Notes	Marks
4 (a)	stomata / guard cells; <u>spongy</u> (mesophyll) / <u>spongy</u> (layer) / air spaces / eq; moist; thin; large surface area;	ignore wide and flat	Max 3
(b)	$6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ ;;  $\text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 = 1$	allow one mark for correct equation and correct formula and a second mark for correct balance formula wrong = 0 eg. $\text{CO}_2 =$ wrong but $\text{CO}_2 =$ correct reject word equation  ignore light/chlorophyll/energy	2
(c) (i)	dark for 12 hours plus;		1
(ii)	keep in dark / no light / cover leaf surface / eq;		1
(iii)	boil/heat/warm in ethanol/alcohol; safety: water bath / no flame / eq; iodine; blue black / eq;	tube of ethanol in water bath = 2  ignore tongs / gloves etc  allow black / dark black / dark blue / blue	3

Total 10 marks

Question number	Answer	Notes	Marks
5 (a) (i)	A;  (C)  B;  A;	Only one letter in each box	3
(ii)	1. (bile) <u>emulsification</u> / <u>emulsifies</u> ;  2. small(er) drops / increased surface area / more drops;  3. optimum pH / correct pH / best pH;  4. (lipase) is an enzyme;  5. digestion / breakdown;  6. into <u>fatty acids</u> / into <u>glycerol</u> ;		4
(b)(i)	villus / villi;	allow phonetic spelling	1

(ii)	1. large surface area; 2. microvilli ; 3. capillaries; 4. movement of blood / concentration gradient / eq; 5. one cell thick / thin wall / thin / short distance; 6. diffusion; 7. active transport;	1. ignore many villi idea  4. ignore cell wall	5
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Total 13 marks

Question number	Answer	Notes	Marks
6 (a)	(trap/absorb) light / eq; chlorophyll; photosynthesis / starch / glucose / eq;	ignore trap energy	2
(b)	A cell wall; B vacuole; C cytoplasm;		3
(c) (i)	C; A;		2
(ii)	starch removed / starch used / no starch / eq; (converted to) glucose; respiration / energy;		2
(iii)	boil (in ethanol) / heat (in ethanol)/ eq; ethanol / alcohol; no naked flame / water bath / hot water / in water / eq;	allow water mark if linked to boil / heat	3
(iv)	iodine / iodide;		1
		<b>Total</b>	13