

# Nutrition

## Mark Scheme 2

<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 2

**Time Allowed:** 59 minutes

**Score:** /49

**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)(i)	1. <u>upper</u> epidermis; 2. transparent / lets light through / no chloroplasts;	waxy cuticle is transparent = 1	2
(ii)	1. palisade; 2. densely packed / aligned vertically / eq; 3. idea of <u>many</u> / <u>lots</u> of chloroplasts; 4. absorb / take in / trap light;	ignore lots of chlorophyll	3 max
(iii)	1. spongy; 2. <u>air</u> spaces; 3. diffusion / movement of gases / gas exchange / eq; 4. xylem vascular bundle; 5. transport water;	Ignore phloem	3 max
(iv)	1. guard cell; 2. open / close; 3. let in carbon dioxide / water loss / transpire / evaporate / eq;	Ignore stomata Ignore gas exchange	2 max
(b)	1. lower surface in water / upper surface exposed to air; 2. allows carbon dioxide in; 3. allows transpiration / evaporation / water loss / eq;	Ignore gas exchange Allow converse for Mps 2 and 3	2 max
(c)(i)	20;		1
(ii)	fewer/no stomata / holes / pores / guard cells;		1

Total 14 marks

Question number	Answer	Notes	Marks
2	<p>C garlic and no garlic / different amount / mass of garlic;</p> <p>O same age / species / same gender of <u>mosquito</u> / eq;</p> <p>R lots of people / repeat / eq;</p> <p>M1 count number of mosquito bites / landing / eq;</p> <p>M2 per hour / day / same time period stated;</p> <p>S1 and S2 same light / same temperature / same time of year / same diet of people / same gender or age or mass of people / same clothing or exposure of skin / same number of mosquitoes / eq;;</p>	Ignore location / place / room/ environment	6 max

Total 6 marks

Question number	Answer	Notes	Marks
3(a)(i)  (ii)	oxygen / O <sub>2</sub> ;  Four from:  1. temperature; 2. waterbath / glass screen / eq;  3. carbon dioxide; 4. add same mass of hydrogen carbonate to water / eq;  5. light <u>intensity</u> / wattage of bulb / eq; 6. distance from lamp / use a light meter / same bulb / background light / eq;  7. mass / surface area of plant / number of leaves / species / same plant;	Ignore 0  Mps in pairs  Mp2 ignore control of room temp. / using a thermometer       Plant as variable 1 max	1          4 max
(b) (i)	25 / 24.7 / 24.6 recurring;       1. (red and blue) have been repeated / show	Ignore 24.6  Allow 24.6 = 25  Ignore 24.67	1

	<p>(ii) similar pattern; 2. (green) ignored anomalous result / green only two repeats;</p>		2
(c)	<p>S y axis scale linear and graph at least half the grid; A y axis labelled number of gas bubbles / number of bubbles / rate of photosynthesis; U released in one minute / per minute / in one minute; P <u>average</u> plotted correctly for blue and green; K colour bars identified;</p> <p>Line graph loses P Allow S and A if axes reversed</p>		5
(d)	<p>1. blue light absorbed; 2. green light reflected / transmitted / not absorbed / eq;</p>		2 max

Total 15 marks

Question number	Answer	Notes	Marks
4	plasma; red; haemoglobin; aerobic; carbon dioxide; platelets; antibodies; phagocytes;	Allow macrophage / neutrophils	8

Total 8 marks

Question number	Answer	Notes	Marks
5	<p>C with and without vitamin D / range of vitamin D / different volume of milk;</p> <p>O same age / same ethnicity / same gender / same health / eq</p> <p>R more than one child per treatment / repeat investigation / eq;</p> <p>M1 measure straightness of legs / height / count number with rickets / curvature / eq;</p> <p>M2 time period must be minimum of one month;</p> <p>S1 and S2 same area or same town or same country / same exposure to sunlight or same time outside / same time of year / same diet / eq;;</p>	<p>R Allow group if per treatment</p> <p>M1 Ignore mass</p> <p>S Ignore same temperature / same room / same exercise / same sleep</p>	6 max

Total 6 marks