Coordination and Response

Mark Scheme 1

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

Time Allowed: 63 minutes

Score: /52

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. cell membrane; 2. cytoplasm; 3. chromosome / nucleiod; 4. <u>plasmid</u>(s); 5. flagellum; 6. pilli; 7. ribosome; 8. capsule;	3. . ignore DNA 4. . ignore circle of DNA ignore incorrect structure label ignore correct structure labelled incorrectly or doesn't look like correct structure eg plasmid going to a straight line in cytoplasm	3
(b)(i)	S vertical scale linear and at least half grid; L neat lines drawn for bars; A axes labelled number of people and type of food / names of foods; P bars at correct height for ill and dead; K key to show ill and dead;	If scale not linear lose S and P Line graph loses L	5

(ii)	1. cheese; 2. indication of working 22% / 21.9% / 21.97% risk of death / 78% chance of living / ratio of 4.55;			2
(c)	1. kill/destroy bacteria / eq; 2. white blood cells; 3. <u>phagocytes / macrophage</u>; 4. engulf / surround / ingest / digest / eat / eq; 5. <u>lymphocytes</u>; 6. antibodies / antioxins; 7. (bind to) antigens; 8. memory cells;	phagocytosis = 2 lymphocytes engulf = allow lymphocyte mark only phagocytes produce antibodies all phagocyte mark only white blood cells engulf = 2 white blood cells produce antibodies = 2		5

Total 15 marks

Question number	Answer			Notes	Marks
2 (a)					5

Effect	Name of hormone	Source
converts glucose to glycogen	(insulin)	(pancreas)
stimulates male secondary sexual characteristics	testosterone;	(testis)
increases permeability of the collecting duct	ADH;	hypothalamus / pituitary;
repairs uterus lining	oestrogen;	ovary;

Allow reasonable spellings

Question number	Answer	Notes	Marks
(b)	1. soluble / dissolves; 2. osmotic effect / eq;	Ignore small	2
(c)	X;		1

Total 8 marks

Question number	Answer	Notes	Marks
3 (a)	<table><tr><th>Group</th><th>Can carry out photosynthesis</th><th>Have a cell wall</th><th>Can be pathogenic</th></tr><tr><td>bacteria</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>fungi</td><td></td><td>✓</td><td>✓</td></tr><tr><td>viruses</td><td></td><td>X</td><td>✓</td></tr></table>	hybrid cross tick = 0 blank = 0 8　= 4 7/6 = 3 5/4 = 2 3/2 = 1 1/0 = 0	4
(b)	<table><tr><th>Characteristic</th><th>Example of this process</th></tr><tr><td>they require nutrition</td><td>eating food</td></tr><tr><td>they respire</td><td>releasing energy from carbohydrate</td></tr><tr><td>**movement / eq**;</td><td>some animals can fly</td></tr><tr><td>they control their internal conditions</td><td>**blood glucose / blood pressure /body temperature / sweating / osmoregulation / eq**;</td></tr><tr><td>**reproduce / eq**;</td><td>increase of the population of foxes</td></tr><tr><td>they grow</td><td>**cells divide / increase in mass / size / get bigger / increase in height / eq**;</td></tr></table>		4

Question number	Answer		Marks
3 (c)	receptor / nerve ending; sensory neurone / sensory nerve; impulse / message / signal; CNS / spinal cord / grey matter; synapse; relay neurone / relay nerve; motor neurone ; muscle / effector; contract;	sensory or motor not in correct order = 0 ignore brain allow intermediate / association;	5
		Total	13

Question number			Answer	Notes	Marks
4	(a)		small surface area to volume (ratio); less heat loss / less energy loss maintain body temp. / keep warm / fat insulation / eq;	allow small surface area to mass (ratio)	2
	(b)		insulation / insulator / insulated; trap air; less heat loss / less energy loss / maintain body temp. / keep warm / trap heat / eq;		max 2
5	(c)	(i)	muscles kept warm / eq; contract; respiration; enzymes / optimum;	allow converse ignore work / move ignore answers that describe position in feet	max 3
		(ii)	strong / not elastic / eq;	allow descriptions of strength eg will not snap strong and elastic = 0	1
	(d)		less heat loss / less energy loss / maintain body temp. / keep warm / share body heat / trap heat / eq; shelter / protect / not exposed (cold/wind) / eq; decrease SA:Vol;	ignore protect from predators	2

TOTAL 10 MARKS

Question number	Answer	Notes	Marks

5	C noise and no noise / range of
	        noise;
	
	O same species / mass / seeds / amount of crop / eq;
	
	R replication evident;
	
	M1 mass eaten / number eaten /
	        count birds / eq;
	
	M2 time period stated;
	
	S1 weather / season / temperature/
	        wind / same time of day / eq;
	
	S2 same number/ species of bird /
	        same area / field size / quadrat /
	        eq;
		allow amount / how much / how many
		
		allow temperature if in field
		
		ignore same field
			max 6

TOTAL 6 MARKS