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>;	phagocytosis = 2		
	4. engulf/ surround / ingest / digest / eat / eq;			
	5. <u>lymphocytes</u>;	lymphocytes engulf = allow lymphocyte mark only		
	6. antibodies / anti toxins;			
	7. (bond to) antigens;	phagocytes produce antibodies all phagocyte mark only		
	8. memory cells;			
		white blood cells engulf = 2		
		white blood cells produce antibodies = 2		
				5

Total 15 marks

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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)					hybrid cross tick = 0	4
	Group	Can carry out photosynthesis	Have a cell wall	Can be pathogenic	blank = 0	
	bacteria	✓	✓	✓	8 = 4	
	fungi	X	✓	✓	7/6 = 3	
	viruses	X	X	✓	5/4 = 2	
					3/2 = 1	
					1/0 = 0	

(b)				4
	Characteristic	Example of this process		
	they require nutrition	eating food		
	they respire	releasing energy from carbohydrate		
	movement / eq;	some animals can fly		
	they control their internal conditions	**blood glucose / blood pressure /body temperature / sweating / osmoregulation / eq**;		
	reproduce / eq;	increase of the population of foxes		
	they grow	**cells divide / increase in mass / size / get bigger / increase in height / eq**;		

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