Question number	Answer	Notes	Marks
1 (a)	1. cell membrane; 2. cyt lasm; 3. c omosome / nucleiod; 4. p smid(s); 5. agellum; 6. lli; 7. r osome; 8. psule;	 3. ig re DNA 4. ig re 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/destro bacteria / eq; 2. whi blood cells; 3. ph ocytes / macrophage; 4. engul / surround / ingest / digest / eat / eq; 5. lymp cytes; 6. antibodies / anti xins; 7. (b d to) antigens; 8. mory 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

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>2 (a)</td><td>
<table>
<tr><th>Effect</th><th>Name of hormone</th><th>Source</th></tr>
<tr><td>converts glucose to glycogen</td><td>(insulin)</td><td>(pancreas)</td></tr>
<tr><td>stimulates male secondary sexual characteristics</td><td>testosterone;</td><td>(testis)</td></tr>
<tr><td>increases permeability of the collecting duct</td><td>ADH;</td><td>hypothalamus / pituitary;</td></tr>
<tr><td>repairs uterus lining</td><td>oestrogen;</td><td>ovary;</td></tr>
</table>
</td><td>Allow reasonable spellings</td><td>5</td></tr>
</table>

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

Total 8 marks

<table>
<tr><th>Question number</th><th>Answer</th><th>Notes</th><th>Marks</th></tr>
<tr><td>3 (a)</td><td>
<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>
</td><td>hybrid cross tick = 0

blank = 0

8 = 4
7/6 = 3
5/4 = 2
3/2 = 1
1/0 = 0</td><td>4</td></tr>
<tr><td>(b)</td><td>
<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>
</td><td></td><td>4</td></tr>
</table>

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