

## 6 Disease, defence and treatment mark scheme

Question			Marking details	Marks Available
1			Stage 1 Vaccine/vaccination; Stage 2 Antigens; Stage 3 Lymphocyte/ memory cells; Stage 4 Mitosis; correct spelling Stage 5 Antibodies;	5
2	a	i	For comparison/ some regions have higher populations than others;	1
		ii	84%  Incorrect answer 50 – 8 = 42; 42/50 x 100	2  (1)
		iii	{Higher number of <u>deaths per 100 000</u> / higher percentage die} (in Africa); ORA	1
	b		Vaccine contains the antigen; Causes memory cells to be produced; For future invasions of bacteria; by { <u>rapid production</u> / production of <u>large numbers</u> } of antibodies;	4
	c		<u>Bacteria</u> develop <u>resistance</u> to <u>antibiotics</u> / fewer people vaccinated;  NOT Bacteria resistant to vaccine/ Bacteria are immune to antibiotics	1
3	a	i	Description must include <u>DNA/RNA/ genetic material/ genes/nucleic acid</u> ; and <u>protein</u> {coat/ outside};	2
		ii	III	
	b		Insects can become {resistant/ immune}/Could harm useful insects/ insecticides could enter food chain/ could bioaccumulate;	1
	c		Biological control/ biocontrol;	1

	d		<p>May not be specific to target species (may use other words to 2 convey this)/ could affect {useful/ other} insects/ could harm other animals;</p> <p>May not be able to {survive/ reproduce} in {environmental factors/ climate}/ reproduce successfully;</p> <p>Fungus could spread out of control/ could become a pest itself; Midges could become immune to the fungus;</p>	2										
4	a		<table border="1"> <thead> <tr> <th>name of cell</th> <th>function</th> </tr> </thead> <tbody> <tr> <td>given</td> <td>carry oxygen;</td> </tr> <tr> <td>lymphocyte; NOT white blood cell</td> <td>given</td> </tr> <tr> <td>given</td> <td> <ul style="list-style-type: none"> <li>• Ingest/ take in/ digest/ engulf; NOT eat/ destroy</li> <li>• bacteria/microorganisms/ pathogen/ microbes; NOT disease</li> </ul> </td> </tr> <tr> <td>given</td> <td>(blood) clotting;</td> </tr> </tbody> </table>	name of cell	function	given	carry oxygen;	lymphocyte; NOT white blood cell	given	given	<ul style="list-style-type: none"> <li>• Ingest/ take in/ digest/ engulf; NOT eat/ destroy</li> <li>• bacteria/microorganisms/ pathogen/ microbes; NOT disease</li> </ul>	given	(blood) clotting;	4
name of cell	function													
given	carry oxygen;													
lymphocyte; NOT white blood cell	given													
given	<ul style="list-style-type: none"> <li>• Ingest/ take in/ digest/ engulf; NOT eat/ destroy</li> <li>• bacteria/microorganisms/ pathogen/ microbes; NOT disease</li> </ul>													
given	(blood) clotting;													
	b		<p>no nucleus/thin in centre/ (bi)concave; NOT doughnut</p> <p>more light passes through (centre); accept less stain NOT less haemoglobin in the middle</p>	2										