

Mark Scheme

Combined Science GCSE

Health, Disease and the Development of
Medicines Test

(Levels 4-9)

	Answer	Marks															
1. (a)	the state of physical, mental and emotional well being and freedom from disease or injury.	(1)															
1. (b)	<table border="1"> <thead> <tr> <th></th><th>Communicable</th><th>Non-communicable</th></tr> </thead> <tbody> <tr> <td>Tuberculosis</td><td>✓</td><td></td></tr> <tr> <td>Cancer</td><td></td><td>✓</td></tr> <tr> <td>Cholera</td><td>✓</td><td></td></tr> <tr> <td>Chalara ash dieback</td><td>✓</td><td></td></tr> </tbody> </table>		Communicable	Non-communicable	Tuberculosis	✓		Cancer		✓	Cholera	✓		Chalara ash dieback	✓		(4)
	Communicable	Non-communicable															
Tuberculosis	✓																
Cancer		✓															
Cholera	✓																
Chalara ash dieback	✓																
1. (c)	• Weakened immune system • Body is already using energy to protect against a condition	(2)															

(Total for Question 1 = 7 marks)

	Answer	Marks
2. (a)	yeast virus bacteria protozoan	(4)
2. (b)	C	(1)
2. (c)	X is DNA, Y is a flagellum	(1)
2. (d)	any two from: Virus reproduces in a host only Virus cannot grow/Cell can grow Virus does not respire/Cell respire Virus does not respond to its environment/Cell responds to its environment	(2)

(Total for Question 2 = 8 marks)

	Answer	Marks															
3. (a)	<table border="1"> <tr> <td></td><td>Virus</td><td>Bacterium</td></tr> <tr> <td>Chlamydia</td><td></td><td>✓</td></tr> <tr> <td>Cholera</td><td></td><td>✓</td></tr> <tr> <td>HIV</td><td>✓</td><td></td></tr> <tr> <td>Tuberculosis</td><td></td><td>✓</td></tr> </table>		Virus	Bacterium	Chlamydia		✓	Cholera		✓	HIV	✓		Tuberculosis		✓	(4)
	Virus	Bacterium															
Chlamydia		✓															
Cholera		✓															
HIV	✓																
Tuberculosis		✓															
3. (b)	• Bacteria • Water-borne • Contaminated water	(2)															
3. (c)	• Spread by mosquito • Feeds on blood which contains the malaria parasite • Parasite passed on as mosquito feeds on another person • Mosquito is a vector	(4)															

(Total for Question 3 = 10 marks)

	Answer	Marks
4. (a)	Physical defences; any two from: • Mucus • Cilia • Skin Chemical defences; any two from: • Lysozymes Accept antibodies • Hydrochloric acid Accept stomach acid/HCl	(4)
4. (b)	• Pathogen contains chemicals, detected as foreign • Antigens • White blood cell/lymphocytes carry antibodies • Antibodies are specific to antigens • Matching antibody found and blood cell reproduces rapidly • Produces many copies of the antibody • Antibodies destroy the pathogen	(6)
4. (c)	• After infection by a pathogen, some white blood cells remain • If infected again, they reproduce rapidly to destroy the pathogen	(2)

(Total for Question 4 = 12 marks)

	Answer	Marks
5. (a)	- Antibiotics treat bacterial infections only (antibiotics) inhibit cell processes in the bacteria	(2)
5. (b)	something which looks like a drug but contains none of the drug itself.	(1)
5. (c)	a drug trial where the volunteer and the doctor do not know if they are receiving the real drug.	(1)

(Total for Question 5 = 4 marks)

	Answer	Marks
6. (a)	$BMI = \text{mass (kg)} \div \text{height}^2 \text{ (m)}$ $= 97.5 \div 1.64^2$ $= 36.25$ Award 1 mark for correct method Award 1 mark from conversion of cm to m Award 3 marks for correct answer	(3)
6. (b)	obese	(1)
6. (c)	- eat less/reduce calorie intake - exercise more	(2)
6. (d)	- non-communicable - alcohol - tobacco smoke The answers must be given in that order.	(3)

(Total for Question 6 = 9 marks)