



# Drugs

## Mark Scheme 2

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Drugs
Paper Type	(Extended) Theory Paper
Booklet	Mark Scheme 2

Time Allowed: 40 minutes

Score: /33

Percentage: /100

Question		Answers	Marks	Additional Guidance
1	(a)	(i) mycelium ;	[1]	
		(ii) hypha ;	[1]	
	(b)	hyphae, secrete / release ; enzymes ; amylase ; breaks down starch to, maltose / glucose ; protease ; breaks down protein to, peptides / amino acids ; products absorbed ; by diffusion / active uptake ;	[max 4]	<b>ignore</b> produce  <b>accept</b> soluble nutrients if no digestion given

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Question	Answers	Marks	Guidance
2 (a)	drug / medicine(AW) / chemical / substance ; produced by microorganisms ; <b>A</b> ref to idea of synthetic analogues kills / stops, growth of, bacteria / other microbes ;	[max 2]	medicine / AW e.g. '(antibiotic) used to treat infection' is worth a mark <b>A</b> examples e.g. penicillin qualified 'penicillin is an antibiotic that kills bacteria/AW' would gain 2 marks <b>penicillin alone cannot score</b> <b>R</b> viruses
(b) (i)	(most) were killed by the antibiotic ; <b>ora</b>	[1]	
(ii)	(only) antibiotic-resistant bacteria transferred from <b>B</b> / (only) resistant bacteria in <b>C</b> / fewer resistant bacteria in <b>B</b> / non-resistant bacteria were killed in <b>B</b> ;	[1]	
(c)	resistant bacteria, survive / not killed / are selected for / selection pressure ; eventually, all / many, become resistant ; AVP ; e.g. any consequence of overuse / antibiotic no longer effective ;	[max 2]	<b>R</b> references to <b>immunity</b> as alternative to resistance
(d)	X-rays caused mutations ; change in DNA ; ref to, gene / allele ; mutation causes antibiotic resistance ;	[max 3]	ALLOW radiation
(e)	assume answer is about bacteria unless told otherwise, accept ora / AVP for viruses e.g. capsid  bacteria have cells ; cell wall ; cell membrane ; cytoplasm ; ribosome(s) ; flagellum ; capsule ; AVP ;	[max 2]	<b>R</b> nucleus in bacteria IGNORE composition of cell wall

Question	Answers	Marks	Guidance
2 (f)	<p>HIV infects <u>lymphocytes</u> ;  T helper (lymphocytes / cells) ;</p> <p>fewer antibodies produced ;  infected cells not killed (by immune system) ;  phagocytes less effective ;</p> <p>increased susceptibility to / longer recovery time for, (infectious)  diseases / named disease (TB) ;  cancers ;  <u>opportunistic</u> diseases ;</p> <p>ref to AIDS ;</p>	[max 4]	
<b>[Total: 15]</b>			

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Question	Answers	Marks	Additional Guidance
3 (a)	<p>1 positive correlation ;</p> <p>2 more antibiotics used, more bacteria are resistant ;</p> <p>3 variation between countries at each dosage ;</p> <p>4 data quote 1 ;</p> <p>5 data quote 2 ;</p> <p>e. countries with antibiotic use of &lt;1%, less than 10% bacteria are resistant countries with antibiotic use of 3(+)% , more than 40% bacteria are resistant</p> <p>variation – e.g. some countries at 2.5%, with 4.5% and 32.5%</p>	[max 3]	data quotes must have figure (or range) for use of antibiotics and % resistance
(b)	<p><i>accept ora</i></p> <p>1 bacteria are resistant to some antibiotic ;</p> <p>2 ref. to selection ;</p> <p>3 result of overuse ;</p> <p>4 some are specific ;</p> <p>5 some antibiotics used for rare disease(s) ;</p> <p>6 some only used as last resort ;</p> <p>7 have (many / unpleasant) side-effects / harmful / cause allergy ;</p> <p>8 too expensive ;</p> <p>9 cannot be used on children ;</p> <p>10 AVP ; ref. to other uses, e.g. on animals</p>	[max 3]	R <u>people</u> become, immune / resistant
[Total: 6]			