OCR GCSE 21ST CENTURY BIOLOGY B · J257

BIOLOGY



MARK SCHEME

B2.3 HOW CAN WE PREVENT THE SPREAD OF INFECTIONS? (HIGHER)

SCORE	PERCENTAGE
/22	%

STEMUP

These questions belong to OCR, not to us.

The examination questions, mark schemes and examiner comments in this pack were written and published by OCR. They are past assessment materials, reproduced here so that students can revise from them.

What we do not own

STEMUP is not affiliated with OCR and does not own, and makes no claim to own, any of the question, mark scheme or examiner report material in this pack. OCR has not endorsed, approved or been involved in the production of it. OCR and the qualification titles used here belong to their respective owners and appear for identification only.

Where to find the originals

OCR publishes its past papers, mark schemes and examiner reports. Always check the current specification at ocr.org.uk before you revise, because content and wording can change between series.

If you hold the rights to any material in this pack and would like it amended or removed, contact admin@stemup.co.uk and we will act on it.

Question			Answer/Indicative content	Marks	Guidance
1		i	Antigen ✓	1	
		ii	Antibody ✓	1	
		iii	Whole cell could cause disease ✓	1	
			Total	**3**	
2			Calculated risk is 5.7% / based on data / stats / results / numbers; Perceived risk is what the patient thinks (the risks are) / opinion;	2	**Ignore** risk is calculated / probability / valueb **Ignore** doctors opinion **Examiner's Comments** This question discriminated well between candidates. Many candidates struggled with this. Good answers included responses such as perceived risk is what the patients think the risk is and calculated risk includes data/statistics/numbers. Candidates should avoid tautology such as saying perceived risk is what the patient perceives and calculated risk is what the patient calculates.
			Total	**2**	
3		i	0.75 × 8 (1) 6 (2)	2	 correct answer without working = 2 marks **credit** correct answer written in the table **Examiner's Comments** The majority of candidates were able to successfully manipulate the data to work out the number of deaths.

© OCR 2019.

STEMUP.CO.UK

Question			Answer/Indicative content	Marks	Guidance
		ii	any 2 from: only true for Mali / only true for one country / does not represent the full range of data / different in different countries; 0.75 is not the mean / 0.75 is not the average / 0.75 is not (close to) the true value; Mali is a small sample / 8 people is a small sample / ORA	2	do not credit "wrong / not true / not accurate / not correct" without explanation accept "it" for 0.75 do not credit unqualified ref. to not enough data (as this does not answer the question) Examiner's Comments Candidates who were able to justify in detail why the headline was not a good summary of the data scored the highest marks.
			Total	4	

STEMUP.CO.UK

Question			Answer/Indicative content	Marks	Guidance
4	a		<table><tr><td>There is more chance…</td><td>✓</td></tr><tr><td>Measles is a potentially deadly disease.</td><td></td></tr><tr><td>More people will have the antibodies for measles.</td><td></td></tr><tr><td>A very high uptake of the MMR…</td><td></td></tr><tr><td>There are more people with the measles virus.</td><td>✓</td></tr><tr><td>Measles can be treated by antibiotics.</td><td></td></tr></table>	2	More than 2 boxes ticked, negate 1 mark for each additional tick. Examiner's Comments Most candidates could successfully link the shape of the graph to the two correct explanations.
	b	i	Ref to 140 (1) 700 (2)	2	140 refers to increase Examiner's Comments The correct response was 700%.
		ii	**Any three from:** Rapid / big increase (in a very short time) (1) risk of an epidemic / outbreak / spreads quickly (1) risk of death / serious illness is great (1) harder to control the more it spreads (1) cannot be treated by antibiotics (1) more people need to be vaccinated / fewer people have been vaccinated (1) vaccination is not working / virus mutated / become resistant (1)	3 2	Examiner's Comments A good discriminator. Only some candidates were able to give three reasons why the data was of concern to doctors. **ignore** benefits outweigh risk unqualified **Examiner's Comments**
	c		**Any two from**perception of risk can be different to actualrisk (1)perception of risk is personal / different forall /		This question tested the full range of abilities. Many candidates could explain how actual risk is different from perceived risk. Some candidates struggled with this idea in the context of the question.
			Total	9	

STEMUP.CO.UK

Question			Answer/Indicative content	Marks	Guidance
5		i	**Max. one from:** can be spread from organism to organism ✓ spread in bodily fluids/on surfaces/ in food and water✓ spread by a pathogen/bacteria/viruses/protists/fungi ✓ **Max. one from:** reduce risk of infection by not coming into contact with the mosquito✓ using insecticide/insect repellent✓ using mosquito nets ✓ covering exposed skin ✓	2 (AO 1.1) (AO 2.1)	**ALLOW** specific examples **ALLOW** vector **ALLOW** sensible ideas to prevent infection **DO NOT ALLOW** vaccination (because the question says there is no vaccine for this virus)

STEMUP.CO.UK

Question			Answer/Indicative content	Marks	Guidance
		ii	idea of intercourse/sex with an uninfected person in a different country ✓ use barrier contraception/ abstain from intercourse/sex on return home ✓	2 (AO 2.1) (AO 1.1)	ALLOW correct reference to transmission to uninfected via blood ALLOW named example of barrier contraception ALLOW example to avoid blood transmission ALLOW isolate infected/screening/restricting travel <u>Examiner's Comments</u> 6 (a) (i) and 6 (a) (ii) tested candidates ability to apply their knowledge of communicable diseases to an unfamiliar context. Candidates engaged well with the context and processed the information provided well. For part (a) (i) most candidates gained at least 1 mark with many good suggestions for how to prevent the spread of the virus. When both marks were not credited, this was often for an incorrect description of a communicable disease. In 6 (a) (ii) it was pleasing to see candidates thinking about the information presented to give sensible suggestions to prevent the spread of this virus globally. The most common answer given was a suggestion of using condoms, though some did lose this mark for just stating contraception without qualification. There were also some good examples of other methods that could be used to minimise spread, such as preventing travel or testing/isolation of the infected. The majority of candidates did not gain the second mark for 6 (a) (ii) for failing to explicitly stating that the infected on return from Brazil could pass the virus on to uninfected individuals by sex.
			Total	4	

STEMUP.CO.UK