OCR GCSE 21ST CENTURY BIOLOGY B · J257

# BIOLOGY



## MARK SCHEME

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

| SCORE | PERCENTAGE |
| --- | --- |
| /18 | % |

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| Question | | | Answer/Indicative content | Marks | Guidance |
|---|---|---|---|---|---|
| 1 | | | **Any one from**<br>The incidence of the disease has dropped significantly ✓<br>If the vaccine is shown not to be effective ✓<br>Reference to cost outweighing benefit ✓ | 1 | |
| | | | **Total** | 1 | |
| 2 | | i | **Idea** that Huw is an example of health which is a state of well-being ✓<br>**Idea** that Mary and Paolo are examples of disease which is a disorder of structure or function on the body ✓ | 2 | |
| | | ii | Flu (Mary) is communicable **AND** can be passed from person to person ✓<br>Huntingdon's disease (Paolo) is not communicable **AND** cannot be passed from person to person ✓ | 2 | **IGNORE** reference to infections |
| | | iii | Condom ✓<br>It is a physical barrier ✓ | 2 | **ALLOW** idea that body fluids can't come into contact |
| | | | **Total** | 6 | |

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| Question | | | Answer/Indicative content | Marks | Guidance |
|---|---|---|---|---|---|
| 3 | a | | *qualitative answers*:<br>stays low / stable / the same (from Oct to Feb)<br>idea of increase (from Feb to Apr) (1)<br>peaks / highest in April (1)<br>idea of decrease (from Apr to June) (1)<br><br>then:<br>any correct ref to figures (1) | 3 | max 2 for qualitative answers<br>starts low is not enough look for idea of low numbers over several months<br><br>figures are for any correct value **linked** to a stated month (or any calculated increase / decrease)<br><br><u>Examiner's Comments</u><br><br>In this question candidates were provided with some data which showed the number of measles cases reported in South Wales over a period of nine months. Candidates were asked to describe the pattern shown by the data and use figures in their description. Approximately a third of candidates scored full marks for this question. Many candidates gave good descriptions of the data, identifying points of increase and decrease. Unfortunately some candidates did not back this up with figures and often when figures were included they were not attached to the correct month, therefore these candidates failed to gain full marks. On occasion candidates referred to seasons rather than the months as stated in the data.<br><br>Some candidates did struggle to comprehend the command word – describe and tried to explain the data giving reasons such as the warm weather contributing to spread or lack of vaccinations.<br><br>Some candidates found it difficult to write a description from the chart. Some went into minute detail describing every month whilst others glossed over the data set. Candidates should be encouraged to practise this skill in preparation for examinations |

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|---|---|---|---|---|---|
| | b | i | Jo | 1 | Examiner's Comments<br><br>Candidates were asked to select which of the reasons showed the parent had properly considered their social responsibility. Around half of the candidates correctly identified the correct reason. |
| | | ii | Stacy | 1 | Examiner's Comments<br><br>Candidates were asked to give a reason why the MMR vaccination should be made compulsory. Candidates found this difficult with only a third of candidates selecting the correct response. |
| | | iii | *any 2 from*:<br>Rhys, Hilary and Stacy | 1 | Examiner's Comments<br><br>Candidates were asked to select two people who had not properly considered the scientific evidence. This section was answered very well. |

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|---|---|---|---|---|---|
| | | iv | risk: painful / side effects / may get a temperature / allergic / rash / ache / shows symptoms / death / could catch mumps / measles / rubella<br><br>benefit: stops baby getting mumps / measles / rubella / baby is immune / description of immunity | 2 | need one risk and one benefit for 2 **marks**<br>**ignore** baby can react differently / vague references to ill / sick<br><br>**ignore** stops baby getting MMR / stops baby getting it / a / the disease(s) unqualified<br>accept ref to herd immunity<br><br>Examiner's Comments<br><br>In this question candidates were asked to consider the risks and benefits associated with the MMR vaccination. Some candidates did not seem to understand the ideas behind vaccinations very well with over a third failing to score any marks on this question. Common errors which resulted in the loss of marks included referring to MMR as if it were one disease, the use of vague statements such as stating a risk as 'making them ill' or 'poorly' or as a benefit the idea of preventing 'diseases'. Candidates rarely used the term immunity. |
| | | | Total | 8 | |

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| Question | | | Answer/Indicative content | Marks | Guidance |
|---|---|---|---|---|---|
| 4 | | | Any three from:<br>plants do not have white blood cells ✓<br><br>plants cannot make antibodies ✓<br><br>plants cannot make memory cells ✓<br><br>therefore plants cannot develop immunity against a specific pathogen/antigen from a vaccination ✓ | 3 (AO 2.1 × 3) | DO NOT ALLOW references to "remembering"; must refer to immunity or becoming immune<br><br>Examiner's Comments<br><br>This was a challenging question for candidates, requiring them to apply what they know about how vaccinations establish immunity in humans to the context of why a vaccination would not work in a plant. Some responses such as "plants do not have blood" were not specific enough to score marks. Some candidates needed to refer specifically to the lack of white blood cells, antibodies and memory cells in plants to score marks.<br><br>AfL The general statement that "plants do not have an immune system" was not sufficient for a mark. Although plants lack circulating immune cells and antibodies, other defence and disease-resistance mechanisms present in plants are generally regarded as forming a primitive immune system. |
| | | | Total | 3 | |

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