

**Assessment Schedule – 2006**

**Human Biology: Describe how humans respond to pathogens (90176)**

**Evidence Statement**

Question	Evidence Contributing to Achievement	Evidence Contributing to Achievement with Merit	Evidence Contributing to Achievement with Excellence
ONE (a)	<p><i>Describes any TWO of:</i></p> <p><b>Blood Clots</b> close openings in skin /form barrier /scab forms &amp; stops bact. entering <b>OR</b> Trap phagocytes/bacteria in (sticky) fibrin (threads).</p> <p><b>Sweat</b> contains acid which kills bacteria/ pathogens <b>OR</b> contains lysozyme which kills bacteria/pathogens <b>OR</b> contains salt which kills bacteria/ pathogens.</p> <p><b>Stomach Acid</b> acid kills bacteria / pathogens/low pH kills.</p>		
(b)	<p><i>Describes how cilia AND mucus work together.</i></p> <p><b>Mucus</b> (sticky) traps pathogens <b>AND</b> <b>Cilia</b> move/beat/sweep trapped pathogens upwards/ OR sneezed or coughed out.</p>		
(c)	<p>Any bacteria / virus / fungus / (micro) organism that causes disease.</p>		
TWO (a)	<p><i>States any TWO of:</i></p> <ul style="list-style-type: none"> <li>• Redness / itchiness</li> <li>• swelling</li> <li>• warmth/heat/hot/ incr. temp if referring to wound area <u>specifically</u></li> <li>• pain</li> </ul> <p><b>(of hand)</b></p>		

<p>(b)</p>	<p><i>Identifies <b>TWO</b> inflammatory responses that prevent spread of pathogens, eg:</i></p> <ul style="list-style-type: none"> <li>• (Damaged) cells release chemicals/histamine</li> <li>• Plasma leaks from capillaries into injured area</li> <li>• White Blood Cells/phagocytes move to damaged area</li> <li>• White Blood Cells/phagocytes engulf (and destroy)/kill the pathogens/bacteria/virus/microbes.</li> <li>• Immunoglobulin (IgE) produced</li> <li>• Allergens bind to IgE</li> </ul>	<p><i>Gives a reason <b>how ONE idea</b> in Achievement helps to prevent the spread of pathogens, eg:</i></p> <p>Damaged cells release chemicals/histamine that attract WBCs/phagocytes to the area, which attack/engulf/destroy the invading pathogens.</p> <p><b>OR</b></p> <p>Blood vessels (capillaries) dilate. Increased blood flow brings more WBCs/phagocytes to the damaged area.</p> <p><b>OR</b></p> <p>Plasma from 'leaky' capillaries stimulates/signals WBCs/phagocytes to move to damaged site to engulf (&amp; destroy) the invading pathogens.</p> <p><b>OR</b></p> <p>Lymphocytes produce antibodies/antibodies clump pathogen and inactivate it.</p> <p><b>OR</b></p> <p>T lymphocytes destroy infected cells /&amp; produce memory cells B lymphocytes produce antibodies &amp; memory cells</p>	<p><i>Answer links <b>THREE</b> explanations (reasons) together, eg:</i></p> <p>Damaged cells from the hand release <b>histamines</b> which stimulate For an EXCELLENCE MUST have <b>EITHER</b> blood vessels to dilate which increase blood flow to area <b>OR</b> capillaries to "leak" plasma into the damaged area causing swelling..</p> <p><b>AND</b> any 2 of</p> <p>This in turn stimulates/signals WBCs/phagocytes to move to damaged site to engulf and destroy the (invading) pathogens so they cannot spread throughout the body. <b>OR</b> Phagocytes move to site &amp; engulf pathogens to stop their spread &amp; lymphocytes bind to pathogen to inactivate pathogens. <b>OR</b> IgE is an antibody produced which coats the mast cells and the allergen/pathogen bind to IgE or histamine is released <b>OR</b> T lymphocytes destroy infected cells /&amp; produce memory cells B lymphocytes produce antibodies &amp; memory cells</p>
<p>THREE</p>	<p><i>Describes <b>ONE</b> of:</i></p> <ul style="list-style-type: none"> <li>• There are too many types of common cold viruses</li> <li>• The common cold virus keeps on changing/mutating.</li> </ul>	<p><i>Explanation must <b>link</b> changing of virus to body being unable to produce antibodies.</i></p> <p>Eg</p> <p>There are <b>too many types</b> of common <b>cold viruses</b> so new antibodies/memory cells cannot be made quickly enough/ <b>takes time</b> to build/make antibodies</p> <p><b>OR</b></p> <p>The body cannot build up an immunity because the viruses that cause the common cold mutate/change their structure so <b>antibodies</b> must be made every time a <b>new common cold virus</b> enters the body.</p>	
<p>FOUR (a)</p>	<p><i>Describes <b>ONE</b> of:</i></p> <ul style="list-style-type: none"> <li>• to stimulate <b>antibody</b> production</li> <li>• to build up enough antibodies</li> <li>• to produce <b>memory cells</b>.</li> <li>• so body recognises the disease.</li> </ul>		

<p>(b)</p>	<p><i>Describes <b>ONE</b> aspect of vaccination, eg:</i></p> <ul style="list-style-type: none"> <li>• vaccine contains weakened/ dead form of virus/pathogen</li> <li>• antibodies are produced</li> <li>• stimulates (active) immunity</li> <li>• memory cells are produced</li> </ul>	<p><i>Explains <b>ONE</b> aspect of vaccination, eg:</i></p> <ul style="list-style-type: none"> <li>• Vaccine (injection) contains a weakened/ dead form of hepatitis B which causes the production of antibodies.</li> <li>• Vaccine contains weak disease which causes production of memory cells.</li> <li>• Antibodies “clump” the virus/ pathogen and white blood cells.</li> <li>• Phagocytes engulf/ surround and destroy / ‘engulf’ them.</li> <li>• The vaccine stimulates (active) immunity response so antibody production is increased/ more rapid against the virus.</li> <li>• Lymphocytes produce antibodies/ antibodies clump pathogen and inactivate it. T lymphocytes destroy infected cells /&amp; produce memory cells.</li> <li>• B lymphocytes produce antibodies and memory cells.</li> </ul>	<p><i>In depth answer links <b>AT LEAST THREE</b> ideas from Merit.</i></p> <p><i>MUST HAVE for EXCELLENCE vaccine (injection) contains a weakened/ dead form of hepatitis B</i></p> <p><i>AND any TWO other ideas from Merit.</i></p>
------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### Judgement Statement

#### Biology: Describe how humans respond to pathogens (90176)

Achievement	Achievement with Merit	Achievement with Excellence
<p>FOUR questions answered correctly. Minimum 4 × A</p>	<p>FIVE questions answered correctly, including at least TWO at Merit level. Minimum 2 × M + 3 × A</p>	<p>FIVE questions answered correctly, including at least ONE at Merit level and at least ONE at Excellence level. Minimum 1 × E + 1 × M + 3 × A</p>