

AQA, OCR, Edexcel

A Level

A Level Biology

The Immune System Answers

Name:

M M E

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Total Marks: /36

Answer	Marks
<p>1. a)</p> <p>i) An organism that can cause disease - e.g. virus, bacterium, fungus</p> <p>b)</p> <p>i) – Hydrochloric acid is released in the stomach - lowers the pH and destroys pathogens that have entered the body from the external environment</p> <p>ii) – the tracheae are lined with cilia (small hairs) - waft foreign objects and trap them in secreted mucus which is then digested</p>	<p>3 marks</p> <p>2 marks</p> <p>2 marks</p>
<p>2. a)</p> <p>i) White blood cell</p> <p>ii) – Phagocytes recognise pathogens via chemo-attraction -The phagocyte engulfs the pathogen -A lysosome fuses with the engulfed pathogen and digests/ using lysozymes. - The phagocyte then presents the pathogen’s antigens/becomes an antigen presenting cell to further activate the immune system.</p> <p>b)</p> <p>i) Foreign substance that induces an immune response in the body/ foreign protein that initiates immune response</p> <p>ii) -T Killer Cells – kills foreign cells - T-helper cells – activate B cells and regulate the immune response - T-memory cells – remain in the body from previous infections to enable a faster immune response if the body is re-infected.</p> <p>c)</p> <p>i) A – Light chain</p>	<p>1 mark</p> <p>4 marks</p> <p>1 mark</p> <p>6 marks</p> <p>2 marks</p>

<p>B – Heavy chain</p> <p>ii) Four</p> <p>iii) Complementary to specific antigens</p> <p>iv) Mitosis</p> <p>v) Disulphide bonds</p> <p>vi) – each antibody binds to antigens on pathogen - Pathogens become clumped together -Phagocytes/ macrophages can engulf more pathogens at once.</p> <p>d) -Cellular response – T-cells, phagocytes -Humoral response – B cells and antibody production.</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>3 marks</p> <p>2 marks</p>
<p>3.</p> <p>a) i) – A is the primary response - It takes time for the body to undergo an immune response and build up a large enough concentration of the specific antibody -Symptoms occur while the body is undergoing the stages of the immune response.</p> <p>ii) – when the body is infected again by the same pathogen the response is quicker and stronger -Memory B-cells divide into plasma cells and produce antibodies -Memory T-cells divide into the correct type of killer T-cells</p>	<p>3 marks</p> <p>3 marks</p>