**9Sc1** **Response to Infection Test** **Extended Answers** **5 marks**

**Marking Guide**

Once you have COMPLETELY finished and CHECKED your answers to the test then attempt this extended answer section.

If you have explained your answer as fully as you can then you can attempt a second question. Answer on question fully rather than half answering two questions.

To help explain your answer you can use labelled diagrams and dot points.

**Question One** (5 marks)

A mother has just given birth to a baby boy. The baby will have some passive immunity to a range of diseases for the early part of his life.

Describe how the baby could have gained this passive immunity and what his mother can do to protect him from disease until he is old enough to be vaccinated?

**1 mark each point**

|  |
| --- |
| Receives antibodies from mother |
| Across the placenta during pregnancy |
| In colostrum immediately after birth |
| In breast milk |
| Prevention – keep away from infected people/herd immunity |

**Question Two** (5marks)

A person can gain active immunity by becoming vaccinated. Vaccines for viral diseases are made using attenuated viruses.

What is an attenuated virus and describe two other things that can be used to create a vaccine for a pathogen?

**Any 5 points - 1 mark each**

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| Attenuated = weakened virus/modified virus |
| Person gets slightly sick – builds immunity to serious virus |
| Other – Toxoid – a modified toxin |
| * Sub Unit – part of the virus eg. recognition protein |
| Dead Bacteria |
| Has share/proteins but it can not reproduce to make you sick |

**Question Three** (5 marks)

A teacher bypassed the body’s first line of defence when they cut themselves. The area around the cut became infected so the body went to the second line of defence, the inflammatory response.

Explain what would happen around the site of the cut during this inflammatory response.

**Any 5 points – 1 mark each**

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| Mast/damaged cells release histamines |
| Blood vessels dilate taking more blood to area |
| More blood means area turns red and warm - inflamed |
| Blood vessels “leak” |
| * washing pathogens into lymph system |
| White blood cells/Leukocytes engulf/destroy the pathogen |

**Question Four**  (5 marks)

A person catches a disease such as Covid19. The Covid19 virus gets trapped in a lymph node where it encounters the body’s B cells and T cells.

Explain how the B cells and T cells will help the person recover from the virus and never suffer from that disease again.

**1 mark each**

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| --- |
| B cells – produce antibodies |
| * antibodies “handcuff” pathogens together/Antigen-antibody complex |
| T cells – produce Killer T cells |
| * engulf/destroy pathogen and antibody |
| Memory Cells – B and T cells – remember pathogen to produce antibodies and attack quicker |