



**Q1 (5 marks)**

*Describe the specific immune response to a new pathogen. Explain how vaccination exploits ...*

- Pathogen has antigens — detected by lymphocytes [1]
- Lymphocytes produce specific complementary antibodies [1]
- Antibodies bind antigens → pathogen destroyed [1]
- Memory cells form — rapid response on re-exposure [1]
- Vaccine: harmless antigen → same response without disease → memory cells provide future protection [1]