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| Aber Uni logo with 1872 | ENTRANCE SCHOLARSHIP EXAMINATION **FEBRUARY 2023** |

# BIOLOGY 1: Molecules to Organs

## Time Allowed – 1.5 hours

**3 questions should be attempted**

1. The UK government's net-zero carbon emissions goal includes 30,000 hectares of new trees by 2025. Explain in biochemical terms how these trees would remove carbon from the atmosphere.
2. Review the molecular biology of viruses, including some facts about COVID-19.
3. Name and outline the functions of any FOUR hormones in the human body.
4. Explain how living cells are produced using information in DNA.
5. Detail the metabolic steps involved in conversion of a glucose molecule to CO2.
6. Write an essay on (any aspects of) the subject of “Digestion”.
7. What are mutations, and why are they sometimes undesirable?
8. How is urine produced in the human body?
9. Explain what lipids are, giving examples of functions and dietary health effects.
10. Describe the anatomy of a flower, outlining the functions of its various structures.
11. Discuss factors that can affect enzyme reaction rates, and give some examples of enzymes.
12. Compare adaptations for oxygen uptake in different animals.
13. What are bacteria, and how do they differ from eukaryotes?
14. Explain the workings of the immune system. Can it go wrong for some people?
15. Write an essay on “Cell Walls”.
16. Imagine you are a doctor with a patient suffering from any named disease of your choice. Describe the nature of the disease and possible treatment.
17. How does the heart work, and how is blood from it conducted around the body?
18. Present a real or imaginary scientific experiment in the format of a scientific report (‘Introduction’, ‘Materials and Methods’, ‘Results’, and ‘Discussion’).