



**ZIMBABWE SCHOOL EXAMINATIONS COUNCIL**  
**General Certificate of Education Advanced Level**

**BIOLOGY**

PAPER 3: Essays

**6030/3**

**NOVEMBER 2020 SESSION**

**2 hours 30 minutes**

Additional materials:  
Answer paper

**TIME:** 2 hours 30 minutes

**INSTRUCTIONS TO CANDIDATES**

Write your name, centre number and candidate number in the spaces provided on the answer paper/answer booklet.

Answer any **five** questions.

Write your answers on the separate answer paper provided.

On the first page of your answer sheet, indicate the questions you have attempted.

If you use more than one sheet of paper, fasten the sheets together.

**INFORMATION FOR CANDIDATES**

The number of marks is given in brackets [ ] at the end of each question or part question.

You are reminded of the need for good English and clear presentation in your answers.

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**This question paper consists of 3 printed pages and 1 blank page.**

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- 1 (a) Describe the structure of the cell surface membrane. [8]
- (b) Distinguish between globular proteins and fibrous proteins. [6]
- (c) Explain how temperature affects the rate of enzyme catalysed reactions. [6]
- 2 (a) Describe the main steps of the Calvin cycle. [8]
- (b) Explain the biological significance of
1. high latent heat of fusion of water,
  2. density and freezing properties of water. [6]
- (c) Explain the effect of non-competitive inhibitors on enzyme activity. [6]
- 3 (a) Describe cytokinesis in animal cells. [8]
- (b) Explain how natural selection may bring about evolution. [6]
- (c) Distinguish between
1. prophase of mitosis and prophase I of meiosis,
  2. anaphase of mitosis and anaphase I of meiosis. [6]
- 4 (a) Describe the light dependant stage of photosynthesis. [8]
- (b) Explain the process of anaerobic respiration in yeast cells. [6]
- (c) Explain the structure of collagen. [6]
- 5 (a) Describe how oogenesis is controlled by hormones. [8]
- (b) Explain how meiosis promotes genetic variation in sexually reproducing organisms. [6]
- (c) Explain the role of hormones in spermatogenesis. [6]
- 6 (a) Describe the structure of haemoglobin. [8]
- (b) Relate the structure of sieve tube elements to their functions. [6]
- (c) Explain the importance of myelin sheath in determining speed of impulse transmission. [6]

- 7 (a) Describe the economic importance of the Kingdom Fungi. [8]
- (b) Explain the role of microorganisms in the nitrogen cycle. [6]
- (c) Discuss how human activities lead to global warming. [6]

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