



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

LABORATORY TECHNOLOGY

MODULE: Laboratory Quality Controlling 2 PAPER NO: 360/24/M06

DURATION: 3 Hours

NOVEMBER/DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

- 1) Answer all questions in section A (40 marks)
- 2) Answer any three (3) questions from section B (60 marks).
- 3) Do not write on the question paper.
- 4) Do not write your name on the answer script.

This paper consists of 3 printed pages.

SECTION A

Answer all questions in section A (40 marks)

QUESTION 1

- a) Define the following terms:
- i) Cell (2 marks)
 - ii) Polymer (2 marks)
 - iii) Enzyme (2 marks)
 - iv) Microscopy (2 marks)
 - v) Hydrogen bonding (2 marks)
- b) i) State five (5) key structural features of prokaryotic cells. (5 marks)
- ii) Explain with aid of relevant example what is a buffer solution. (5 marks)

QUESTION 2

- a) Differentiate between the following:
- i) Deoxyribonucleic acid (DNA) and Ribonucleic acid (RNA). (6 marks)
 - ii) Reducing sugars and non reducing sugars (6 marks)
 - iii) Resolution and magnification (6 marks)
- b) Describe the use of a centrifuge in biological analysis. (2 marks)

SECTION B

Answer any three (3) questions from section B (60 marks).

QUESTION 3

Discuss any four (4) factors that affect rate of enzyme catalysed reactions. (20 marks)

QUESTION 4

Give an overview of microbiological tests and their applications in biotechnology. (20 marks)

QUESTION 5

Explain any five (5) environmental conditions for a good and efficient biology laboratory. (20 marks)

QUESTION 6

- a) Describe the following structures of proteins: (5 marks)
- i) Primary structure (5 marks)
 - ii) Secondary structure
- b) Discuss the importance of sterilising and calibrating laboratory instruments. (10 marks)

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