

UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

**THIRD YEAR EXAMINATION FOR THE DEGREE OF
BACHELOR OF BIOMEDICAL SCIENCE AND
TECHNOLOGY**

BMED 311: MOLECULAR PHYSIOLOGY OF EUKARYOTES

STREAM: R

TIME: 2 HRS

DAY: FRIDAY [11.30 – 1.30 P.M]

DATE: 06/02/2026

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

INSTRUCTIONS:

- (i) **Answer ALL questions in Section A and Any Other TWO in Section B.**
- (ii) **Do NOT write on the Question paper.**
- (iii) **Illustrate your Answers with diagrams where possible.**

SECTION A (40 MARKS)**QUESTION ONE**

List types of membrane transport. (3 Marks)

QUESTION TWO

Describe coupling process. (5 Marks)

QUESTION THREE

Mention voltage gated ion channel sub classification. (3 Marks)

QUESTION FOUR

Explain signal mechanism. (6 Marks)

QUESTION FIVE

- (a) Outline steps involved in muscle contraction. (4 Marks)
- (b) Give examples of motile cell. (3 Marks)

QUESTION SIX

Explain aspects of Molecular Physiology (6 Marks)

QUESTION SEVEN

Mention physiological significance of cysloop receptors. (4 Marks)

QUESTION EIGHT

- (i) Outline importance of nociception (3 Marks)
- (ii) Contrast nociception and pain (3 Marks)

SECTION B. ANSWER ANY TWO QUESTIONS (30 MARKS)

QUESTION NINE

Discuss nicotinic Acetylcholine (nAch), Serotonin 5-HT₃, GABA and Glycine in respect to cysloop receptors. **(15 Marks)**

QUESTION TEN

Red blood cells play an important role in the removal of excess hydrogen ions in the body. Discuss. **(15 Marks)**

QUESTION ELEVEN

Discuss active transport in respect to sodium potential pump. **(15 Marks)**