



# MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

P.O. Box 972-60200 – Meru-Kenya

Tel: +254(0) 799 529 958, +254(0) 799 529 959, + 254 (0) 712 524 293,

Website: [info@must.ac.ke](mailto:info@must.ac.ke) Email: [info@must.ac.ke](mailto:info@must.ac.ke)

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## University Examinations 2024/2025

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR  
OF SCIENCE IN BIOCHEMISTRY

### SZL 3402: COMPARATIVE ENDOCRINOLOGY

DATE: JANUARY 2025

TIME: 2 HOURS

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INSTRUCTIONS: Answer question *one* and any other *two* questions

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#### QUESTION ONE (30 MARKS)

- a) State the various functions of endocrine system (3 marks)
- b) Describe briefly the ‘first endocrine experiment’ (3 marks)
- c) Associate the following model organisms with specific breakthroughs in endocrinology:  
clawed toad; pigeon, silkworm (3 marks)
- d) Explain why early civilizations encouraged the castration of young boys (3 marks)
- e) Summarize the contributions of Geoffrey Harris to the field of endocrinology (3 marks)
- f) Outline the histology of a neurosecretory cell (3 marks)
- g) Highlight what holocrine glandular secretion entails (3 marks)
- h) Cite the effects of prolactin in amphibians (3 marks)
- i) Elucidate the significance of endocrine control of pigmentation in crustaceans (3 marks)
- j) Illustrate the relationship between the hypothalamus and pituitary diagrammatically (3 marks)

**QUESTION TWO (20 MARKS)**

- a) Describe common hypothalamic releasing and inhibiting hormones (10 marks)
- b) Describe by origin, target tissue and primary action any five non-hypothalamus non-pituitary mammalian hormones (10 marks)

**QUESTION THREE (20 MARKS)**

Map the occurrence of neurosecretory cells in Platyhelminthes, Nematoda, Annelida, Mollusca and Arthropoda

**QUESTION FOUR (20 MARKS)**

Discuss general principles of hormone action