

CHUKA



UNIVERSITY

**UNIVERSITY EXAMINATIONS
FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF SCIENCE IN BIOCHEMISTRY.**

BIOC 402: BIOCHEMISTRY OF HORMONES

STREAMS: BIOC Y2S1

TIME: 2 HOURS

DAY/DATE: THURSDAY 7/12/2017

8.30 A.M - 10.30 A.M.

INSTRUCTIONS:

- **Answer Question ONE and any other TWO Questions.**

QUESTION ONE (COMPULSORY) [30 MARKS]

- (a) Name three general classes of hormones and give an example in each case. [5 Marks]
- (b) Briefly describe how hormones are transported upon secretion into the circulation. [5 Marks]
- (c) Which class of hormones acts via nuclear receptor? Give an example of this type of hormone and briefly describe its mode of action. [5 Marks]
- (d) Compare in general terms the effects of epinephrine, glucagon and insulin on glucose. [5 Marks]
- (e) Discuss various mechanism involved in the metabolic clearance of hormones. [5 Marks]
- (f) Some hormones trigger very rapid responses, whereas for others the response takes much longer to develop.
- (a) What generalization about the mechanisms of action of these two types of hormones can explain the differences in responses times?
- (b) State three biological effects of hormone. [5 Marks]

QUESTION TWO [20 MARKS]

Describe exhaustively the mechanisms of signal transduction with particular reference to:

- (a) Hormones with Cell Surface Receptors. [10 Marks]
- (b) Hormones with Intracellular Receptors. [10 Marks]

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QUESTION THREE

(a) Describe the action and the metabolic effect of thyroid hormones. [10 Marks]

(b) Outline the posterior pituitary gland hormones and discuss their specific role in metabolic activities and other physiological functions. [10 Marks]

QUESTION FOUR

(a) Give examples of hormones secreted by the various pancreatic islet cells. [5 Marks]

(b) Write in detail on a named peptide hormone (insulin), highlighting its synthesis, mechanism of action and metabolic process or processes it regulates. [15 Marks]

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