



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2013/2014**

**SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR  
THE DEGREE OF BACHELOR OF SCIENCE IN MEDICAL  
LABORATORY SCIENCE WITH INFORMATION  
TECHNOLOGY**

**(CITY CAMPUS - WEEKEND)**

**PMT 226: MEDICAL ENDOCRINOLOGY**

Date: 23<sup>rd</sup> July, 2014

Time: 5.30 - 7.30 p.m.

**INSTRUCTIONS:**

- Answer ALL questions in Section A and B.
- Answer Question 23 and ANY OTHER question in Section C.

**SECTION A: MCQS.**

*Answer ALL questions*

1. The precursor for steroid hormones is:  
a) lipids                      b) cholesterol      c) hydroxy cholesterol  
d) hydroxy steroids      e) alcohol
2. Gonadotropic hormones are \_\_\_\_\_ in nature  
a) glycoprotein                      b) protein                      c) steroid  
d) amino acid derivatives      e) none of the above
3. The immediate precursor of testosterone is:  
a) cholesterol      b) pregnenolone      c) androstenedione  
d) progesterone      e) 17-hydroxyprogesterone
4. All of the following hormones have their actions on mammary gland except:  
a) estrogen                      b) progesterone                      c) prolactin  
d) growth hormone      e) LH
5. Progesterone:  
a) is secreted from ovary      b) is secreted from corpus luteum  
c) causes menstruation      d) causes changes in endometrium  
e) the immediate precursor is pregnenolone
6. Predict the concentration of which of the following hormones is likely to increase if the hypothalamus is damaged:  
a) ACTH      b) FSH      c) TSH      d) LH      e) prolactin
7. Find the mis-match.  
a) pancreas : somatostatin  
b) thyroid gland : calcitonin  
c) anterior pituitary : thyrotropin releasing hormone  
d) adrenal medulla : catecholamines  
e) adrenal cortex : mineralocorticoids
8. Which of the following hormones is indispensable for the ovulation to occur  
a) FSH      b) LH      c) prolactin      d) estrogen

e) progesterone

9. Which of the following may be called as master gland:  
a) hypothalamus      b) pituitary gland      c) thyroid gland  
d) pancreas      e) adrenal gland
10. All of the following are dissimilarities between hormones and enzymes except:  
a) they are secreted into circulation  
b) they are not used up during the reaction  
c) they are produced by one organ and act on the other  
d) they all are not protein in nature  
e) they are highly specific
11. It causes contraction of gall bladder and emptying of bile:  
a) gastrin      b) cholecystokinin      c) motilin  
d) secretin      e) gastric inhibitory peptide
12. All of the following hormones are hyperglycemic except:  
a) growth hormone      b) glucagon      c) cortisol  
d) thyroid hormones      e) ACTH
13. FSH secretion is inhibited by:  
a) inhibin      b) LH      c) progesterone  
d) somatostatin      e) dihydrotestosterone
14. Milk ejection during suckling is caused by:  
a) prolactin      b) LH      c) oxytocin  
d) progesterone      e) somatomammotroph
15. Total amino acids in ACTH molecule are:  
a) 9      b) 191      c) 41      d) 39      e) 44

[1 x 15 marks]

**SECTION B:** (Short answer questions).

*Answer ALL questions*

16. Define the following

- a. Thromboxanes
- b. HPA axis
- c. Positive feedback loop of hormonal action

[2 X 3 marks]

17. Briefly, explain how the effective plasma concentration of a hormone may be regulated physiologically

[4 marks]

18. Contrast the modes of activity of steroid hormones with hormones derived from oligopeptides

[4 marks]

19. List 4 enzymes involved in the major synthetic pathways for the adrenal steroid hormones

[4 marks]

20. Describe the mode of activity of oxytocin, explaining any feedback mechanism involved in the process.

[3 marks]

21. Mention any TWO mechanisms through which hormones may be eliminated from the body

[2 marks]

22. State whether each of the following statements is TRUE or FALSE

- a. Cholecystokinin is not a member of the gut-brain family of peptide hormones but mediates response to satiety and cessation of feeding
- b. Ghrelin secretion is decreased by acetylcholine and gastric inhibitory peptide but increased by somatostatin

[1 X 2 marks]

**SECTION C:** (Long answer questions).

*Answer Q23 plus any other ONE question*

23. Describe the major functions of the endocrine system and use two specific examples to elaborately illustrate how some of these functions are achieved.

[5 + 10 marks]

24. a. With reference to the female HPG-axis, explain how the follicle stimulating hormone, FSH and luteinizing hormone, LH are involved in feedback loops at the following stages
- i. after ovulation
  - ii. start of the development of the follicle
  - iii. mid-point of the menstruation cycle

[3 +3 + 4 marks]

- b. Explain the HP axis and elucidate the involvement of cortisol in hormonal feedback loop mechanism, mentioning any peripheral endocrine gland(s) involved

[5 marks]

25. Using appropriate examples, describe how the pro-opiomelanocortin (POMC) hormone family are synthesized

[15 marks]