# 2018
# ZOOLOGY
# ZOO-103
# ENDOCRINOLOGY

Full Marks:80

Time: 3 hours

***The figures in the margin indicates full marks for the questions :***

***1. Answer the following(Any eight):*** ***1x8=8***

i. Which of the following statement is true regarding catecholamine synthe sis and release from the adrenals?
   a) Epinephrinr accounts for 20% of total adrenal catecholamine release
   b) Norepinephrine is derivedfrom epinephrine through the action of the enzyme PNMT
   c) Catecholamine synthesis is regulated by tyrosine hydroxylase
   d) 35% of catecholamine released are excreted intact in the urine.

ii. The structure of a newly discovered hormone shows that it is a large peptide with a glycosylated subunit. The hormone is likely to
   a) Bind to DNA and affect gene transcription
   b) Bind to adenylate cyclase and stimulate PKC
   c) Bind to a cell membrane receptor
   d) Be secreted intact in the urine.

iii. Which of the following neuroendocrine response scontributes to meeting the enhanced energy demands during exercise?
   a) Glucagon stimulation of hepatic glycogen synthesis
   b) Epinephrine stimulation of hepatic glycogenolysis
   c) Norepinephrine induced stimulation of insulin release
   d) Cortisol inhibition of gluconeogenesis

iv. Which of the following processes takes place immediately after a balanced meal?

a) Pancreatic insulin is suppressed

b) Muscle and fat glucose uptake is increased

c) Hepatic glycogenolysis is increased

d) Lipolysis is increased

v. Regulation of body K+content and distribution can be affected by all of the following except

a) Aldosterone induced increase inK+ increase

b) Insulin stimulation of intracellular K+ efflux

c) B-adrenergic stimulation of cell membrane Na+/K+ ATPase

d) Sudden changes in plasma osmolarity

vi. The hyperglcemia of diabetes mellituss is not the result of

a) Decreased excretion of glucose in the urine

b) Exaggereated release of glucose from the liver during the fasting state

c) Increased hepatic gluconeogenesis

d) Increased hepatic glycogen breakdown

vii. Which of the following describes correctly the role of IP3 in hormone action ?

a) It activates adenylate cyclase

b) It stimulates the release of ca2+ from the ER

c) It activates PKA

d) All the above

viii. In CA the synthesis of JH is inhibited by the hormone

a) DPH

b) PTTH

c) AKH

d) ASH



ix. The synthesis of ecdysone is stimulated and released by

a) DPH

b) AKH

c) CAH

d) PTTH

**2. *Answer the following (any five):*** **2x5=10**

a) JH as a gonadotropin. 2

b) Diabetes mellitus and diabetes insipidous (6 characters) 2

c) Differentiate between hyperthyroidism and hypothyroidism.

d) How does light affect the synthesis of melatonin ? 2

e) How does adrenal medulla help in stressful situation?

f) How do gastrin and enterogastrone influence the function of stomach? 2

**3. *Answer the following short type questions (Any four):*** **5x4=20**

a) Explain how cortisol play an important role in anti-inflammatory and immune system? 5

b) How does cAMP exert their effects as a second messenger? 5

c) write the role of different GIT hormones in digestion of foods.

d) Explain the hormonal regulation of blood calcium .

e) Explain how hypothalamus controls the secretory activity of the pituitary gland.

**4. *Answer the following ( any two):*** 2x9=18

a) What do you mean the term eclosion and diapause in an insects life? Mention the role of these two hormone in eclosion and diapause mechanism respectively. 4+5=9



**PTO**

b) Review the effects of insulin on glucose metabolism with mechanism of actions. 6+3=9

c) Explain the functions of GH and its regulation of secretion. 5+4=9

5. ***Answer the following long type questions (any two):***

a) Discuss the steps of biosynthesis of T3 and T4 and elaborate the physiological functions of thyroid hormones. 6+6=12

b) What is the relationship between aldosterone and rennin-angiotensin system? Add a note on the functions of aldosterone. 7+5=12

c) Write a detailed note on the Structure and function of neurosecretory cells of insects. 5+7=12

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