

M.Sc. Zoology
First Semester
Animal Physiology & Endocrinology
(MSZ - 103)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. **Write a short note on the following. (any two)** 5×2=10
 - (a) Role of HCL in digestion of food in stomach.
 - (b) Enzymes in gastric juice and pancreatic juice.
 - (c) Transmission of nerve impulses at synapse.
 - (d) Role of Cholecystokinin (CCK) in GI tract.
2. Define Hormone. Classify hormone according to their chemical nature. Explain how transportation of hormones takes place in blood. 2+3+5=10
3. Discuss about the Morphology of Pituitary gland. Mention about the hormone secreted by anterior and posterior pituitary gland and their functions. 5+5=10
4. What is the role of Ca⁺⁺ in muscle contraction? Describe briefly on the biochemical mechanism of muscle contraction. 4+6=10
5. Briefly state the mechanism of urine formation in human kidney. How does the counter current Mechanism concentrate urine? 5+5=10
6. **Write short notes on:** 5×2=10
 - (a) Cardiac cycle
 - (b) Blood clotting mechanism
7. Explain about the Cushing's disease. Mention the sign and symptoms of the disease and its effect on other endocrine glands. 4+6=10
8. Explain about the feedback mechanism of Thyroid gland with suitable example.

M.Sc. ZOOLOGY
First Semester
ANIMAL PHYSIOLOGY & ENDOCRINOLOGY
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Duration: 20 minutes

Marks – 20

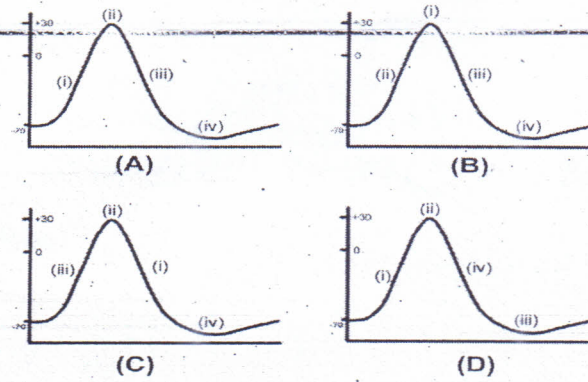
(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

1. The Hypothalamus regulates _____.
a) Heart rate b) Body temperature
c) Glandular secretions d) All of the above
2. The function (s) of oxytocin as/are to
a) cause the uterus contract
b) induce labor
c) stimulate the release of milk from the mother's mammary glands when her baby is nursing
d) All of the above
3. Which hormone dramatically affects physical appearance?
a) Gonadotropin releasing hormone b) Growth
c) Steroid d) Male and female
4. In *humans*, MSH (melanocyte-stimulating hormone) _____.
a) regulates primary skin color b) causes the thyroid to produce thyroxin
c) governs the rate of tanning d) concentration is very low
5. The adrenal glands consist of _____.
a) the inner and outer layer of the kidney
b) the inner medulla and the outer cortex
c) lower adrenal and upper paradrenal sections
d) ACTH and BCTH sections
6. The primary target organ of aldosterone is _____.
a) the liver b) the pancreas
c) the kidney d) all of the above
7. Insulin functions to _____.
a) promote the storage of nutrients
b) lower the blood glucose level by stimulating liver, fat and muscle cells to metabolize glucose
c) stimulate uptake of glucose by cells
d) all of the above

8. A patient presents with signs of hypothyroidism. To investigate the matter, you measure the levels of T4 and TSH. If the patient suffers from iodine deficiency, you can expect the following results:
- T4 reduced, TSH reduced
 - T4 elevated, TSH reduced
 - T4 elevated, TSH elevated
 - T4 reduced, TSH elevated
 - T4 reduced, TSH normal
9. Which of the following pair is NOT correctly matched?
- Insulin ----- Diabetes mellitus (Disease)
 - Glucagon ----- beta cell (Source)
 - Somatostatin ----- delta cell (Source)
 - Corpus luteum ----- relaxin (Secretion)
10. Which of the following is an anterior pituitary hormone?
- ADH
 - Oxytocin
 - TSH
 - Cortisol
11. Mitotane drug is used to cure _____.
- Conn's disease
 - Cushing's disease
 - Addison's disease
 - Parkinson's disease
12. Reabsorption of useful substances from glomerular filtration occur in
- Collecting tube
 - Loop of Henle
 - Proximal convoluted tubule
 - Distal convoluted tubule
13. Angiotensinogen is a protein produced and secreted by
- Liver cells
 - Macula densa cells
 - Endothelial cell
 - Juxtaglomerular cells
14. Which of the following cells in the renal corpuscle can influence glomerular filtration by its contraction?
- Podocytes
 - Endothelial cells of glomerular capillaries
 - Peritubular epithelial cell
 - Mesangial cell
15. Which of the following prevents the conversion of prothrombin to thrombin in an undamaged blood vessel?
- Thromboplastin
 - Fibrinogen
 - Heparin
 - Calcium ion
16. Which of the following situation will be fatal to second foetus?
- If Rh⁺ man marries Rh⁺ woman
 - If Rh⁻ man marries Rh⁺ woman
 - If Rh⁺ man marries Rh⁻ woman
 - If Rh⁻ man marries Rh⁻ woman
17. The events happen during the transmission of nerve impulses along the axon are
- Na⁺ channel close and K⁺ channel open.
 - More Na⁺ channel open.
 - More K⁺ channel open.
 - K⁺ channel close.
- Which of the following graph is the correct representation of events during the transmission of nerve impulses along the axon?



18. The functions of tropomyosin in skeletal muscle include

- a) sliding on actin to produce shortening.
- b) releasing Ca^{2+} after initiation of contraction.
- c) binding to myosin during contraction.
- d) acting as a "relaxing protein" at rest by covering up the sites where myosin binds to actin.

19. and are the two important characteristic features of neuron.

20. Role of Secretin in the pancreatic ductular cells is

- a) To reabsorb HCO_3^- from the pancreatic juice.
- b) To secrete HCO_3^- and reabsorb Cl^- from the pancreatic juice.
- c) To secrete Na^+ and Cl^- in the pancreatic juice.
- d) To reabsorb Na^+ and Cl^- from the pancreatic juice.
