

M.Sc. ZOOLOGY
FIRST SEMESTER
ANIMAL PHYSIOLOGY & ENDOCRINOLOGY
MSZ-102

**SET
C**

[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Marks: 20

(Objective)

Choose the correct answer from the following:

1 × 20 = 20

- Permanent actomyosin complex is formed during:
 - Summation
 - Tetanus
 - Rigor
 - Tone
- To activate actin filament how many calcium ion binds with the troponin molecule?
 - One
 - Two
 - Three
 - Four
- Which one of the following hormones are called 'Emergency hormone for thermoregulation?'
 - Glucocorticoid
 - Aldosterone
 - Epinephrine
 - Thyroxine
- How many oxygen molecules can be carried by one hemoglobin molecule?
 - Four
 - Five
 - Six
 - Seven
- Carboxypeptidases are a group of enzyme secreted by:
 - Stomach
 - Duodenum
 - Liver
 - Pancreas
- Hormones that act mainly on the genetic machinery of the cell are:
 - Peptide hormones
 - Steroid hormones
 - Amino acid derivative
 - Protein hormones
- Mineralocorticoids are secreted by which layer of the adrenal gland?
 - Zona reticularis
 - Zona glomerulosa
 - Zona fasciculata
 - Medulla
- During the biosynthesis of thyroid hormone, Na/I⁻ symporter transports 2 Na⁺ ions forI⁻ ion.
 - 2
 - 1
 - 3
 - None of the above
- The gene for insulin is located on the short arm of chromosome in humans.
 - 11
 - 9
 - 21
 - 5

10. Pituitary hormone triggering the male testes to produce sperm and follicular development on a monthly basis in females, is:
 - a. Prolactin
 - b. Growth Hormone
 - c. Follicle-Stimulating Hormone
 - d. Luteinizing Hormone
11. Besides CAMP, which one of the following is a second messenger in the biological system?
 - a. Ca^{2+}
 - b. ATP
 - c. cDNA
 - d. CGTP
12. During the first systole of the cardiac cycle:
 - a. Right ventricle is filled with blood passed on from right atrium
 - b. Oxygenated blood from the pulmonary veins fills the left atrium
 - c. Oxygenated blood in the left ventricle is pumped to the aorta
 - d. Oxygen depleted blood flows to the right atrium from the body
13. The protein that leaks into the traumatized tissue from the plasma during platelet plug formation is called:
 - a. Fibrin
 - b. Von Willebrand factor
 - c. Thromboxane A_2
 - d. Thrombin
14. Which of these is achieved from myeloid stem cell origin?
 - a. Macrophage
 - b. Neutrophil
 - c. Eosinophil
 - d. All of the above
15. Arrange the following organs of the urinary system as they appear from top to bottom.
 - a. Ureter, kidney, bladder, urethra
 - b. Ureter, kidney, urethra, bladder
 - c. Kidney, ureter, bladder, urethra
 - d. Kidney, ureter, urethra, bladder
16. The stage of urine formation in which water and solutes are forced through the capillary walls and pores of the glomerular capsule into the renal tubule is called:
 - a. Glomerular filtration
 - b. Tubular reabsorption
 - c. Tubular secretion
 - d. Glomerular reabsorption
17. The period when the action potential reaches the muscle until tension can be observed in the muscle:
 - a. Muscle contraction
 - b. Muscle tone
 - c. Muscle summation
 - d. Muscle fatigue
18. The state of contraction of resting muscle is called as:
 - a. Muscle contraction
 - b. Muscle tone
 - c. Muscle summation
 - d. Muscle fatigue
19. Nuclear bag fibers are found in:
 - a. Muscle spindle
 - b. Sarcomere
 - c. Contractile protein
 - d. None of the above
20. The wall of uterus is made up of:
 - a. Skeletal muscle
 - b. Cardiac muscle
 - c. Smooth muscle
 - d. All of these

(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Describe the structure of pituitary gland with diagram. Write the role of hormones secreted by adrenal cortex. 5+5=10
2. Describe the histological structure of thyroid gland with diagram. What is thyroglobulin? Write the role of insulin in carbohydrate metabolism. 4+3+3=10
3. Write the mechanism of thermal balance in homoeothermic animal. 10
4. Explain the digestion of food in buccal cavity and stomach of mammal. 10
5. What are the contractile proteins responsible for muscle contraction, describe with diagram. Discuss the molecular event of muscle contraction with diagram. 5+5=10
6. Discuss the gross neuro anatomy of brain and spinal cord. 5+5=10
7. Explain the steps involved in blood clotting. Describe the extrinsic and intrinsic pathways involved in blood coagulation with necessary illustrations. 2+8=10
8. What is the inheritance pattern of ABO blood group? Explain the compatibility of agglutinin-agglutinins in all the four blood groups. 4+6=10

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