U.G. 3rd Semester Examination - 2020

ZOOLOGY

[HONOURS]

Course Code : ZOOL-H-CC-T-06

(Animal Physiology : Controlling & Coordinating Systems)

Full Marks : 40 Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions out of the following : 2×5=10

   i) What do you mean by Urothelium? State its function.

   ii) Differentiate compact bone tissue and spongy bone tissue.

   iii) Distinguish between AMP and RMP of excitable tissue.

   iv) What are EPSP and IPSP?

   v) What is the molecular basis of 'rigor mortis'?

   vi) Can corpus luteum be considered as endocrine gland?

   vii) Give example of one steroid hormone and one peptide hormone.

   viii) What do you mean by dual origin of pituitary gland?

2. Answer any **two** questions out of the following: 5×2=10

   i) Distinguish between simple epithelial tissue and compound epithelial tissue. Write a note on the basement membrane of epithelial tissue. 2+3=5

   ii) What are osteoblasts and osteoclasts? Classify cartilage according to the number of cells and the characteristics of ground substance. 2+3=5

   iii) What is axon hillock? What is the function of Schwann cell? Distinguish between electrical and chemical synaptic transmission. 1+1+3=5

   iv) Mention two basic characteristics of muscle fibre. Write a note on the histological structures of skeletal, smooth and cardiac muscle tissue. 2+3=5

3. Answer any **two** questions out of the following: 10×2=20

i) Write two basic properties of neuron. How is action potential originated in neuron? Comment on the mechanism of propagation of nerve impulse across the myelinated and unmyelinated nerve fibres. 2+4+4=10

ii) Briefly describe the ultrastructure of skeletal muscle fibre with suitable diagram. What are titin filaments? What is the role of calcium ion in muscle contraction? 5+1+4=10

iii) Distinguish between Interstitial cells of Leydig and Sertoli cells. Describe the histological structure of mammalian ovary with suitable diagram. Discuss the role of hormones in maintaining normal male and female reproductive physiology. 2+4+4=10

iv) Why is hypothalamus regarded as neuroendocrine gland? Distinguish between the mechanism of hormone action through extracellular and intracellular receptors. What are Pituicytes and Herring bodies? Distinguish between the histological structures of cortex and medulla of mammalian adrenal gland. 2+3+2+3=10

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