



**WEST BENGAL STATE UNIVERSITY**

B.Sc. Honours Part-III Examination, 2022

**ZOOLOGY**

**PAPER: ZOOA-VII**

Time Allotted: 4 Hours

Full Marks: 100

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.  
All symbols are of usual significance.*

1. Answer any **six** questions from the following: 2×6 = 12
- (a) What do you mean by Euryhaline and Stenohaline animals?
  - (b) State the location and functions of chloride cells.
  - (c) What is node of Ranvier?
  - (d) State the sites of synthesis of inhibin and prolactin.
  - (e) Differentiate between dye and stain.
  - (f) What is rete mirabile?
  - (g) What do you mean by fight-or-flight response? Name the hormone responsible for this.
  - (h) State the cause and symptoms of diabetes insipidus.
  - (i) Write the full form of HSP. Mention its function.
  - (j) What are glial cells? State their function.
2. Answer any **three** questions from the following: 5×3 = 15
- (a) Describe the methods of osmoregulation in catadromous fish. 5
  - (b) What are the ways by which ATP supply is maintained in muscles during contraction and relaxation? 5
  - (c) What are the differences between bioluminescence and chemiluminescence? State the biological importances of bioluminescence. 2+3
  - (d) Explain depolarization and repolarization of action potential generated during the conduction of impulse. 5
  - (e) Describe the accessory respiratory organ in 'jeol' fish. 5
3. Answer any **two** questions from the following: 10×2 = 20
- (a) Draw and describe the ultrastructure of synapse. Where is acetylcholine synthesized? State the role of acetylcholine in the transmission of nerve impulse. 5+1+4
  - (b) How does swim bladder differ from lungs? State the functions of swim bladder in teleosts. What is double respiration? Describe the process of double respiration in birds with a neat diagram. 2+3+1+4

- (c) Describe the structure and functions of Juxtaglomerular apparatus (JGA) with a neat diagram. State the role of ADH in mammalian urine formation. 4+3+3
- (d) What do you mean by oxygen-dissociation curve? State the factors influencing it. Describe Hamburger's phenomenon with a suitable diagram. 2+3+3+2
4. Answer any *three* questions from the following: 5×3 = 15
- (a) Describe the biosynthesis of T<sub>3</sub> and T<sub>4</sub>. 5
- (b) Classify hormones of vertebrates with examples on the basis of chemical nature. 5
- (c) State the source and functions of oxytocin. 5
- (d) Describe a mature Graffian follicle with a labelled diagram. Mentioning their conditions. 3+2
- (e) Define neuroendocrine, autocrine and paracrine modes of hormone delivery system with suitable example. 2+1+2
5. Answer any *two* questions from the following: 10×2 = 20
- (a) What do you mean by hypothalamo-hypophysial testicular axis? Discuss the roles of sertoli and leydig cells in the regulation of spermatogenesis. State the functions of testosterone. 2+2+2+4
- (b) What do you understand by first messenger and second messenger concept of hormone action? With proper example, illustrate the role of CAMP as second messenger. 4+6
- (c) State the causes and symptoms of hypothyroidism. Discuss the roles of estradiol, progesterone and LH in menstrual cycles in human. 4+2+2+2
- (d) Explain the mode of action of steroid hormones with a suitable diagram. Comment on the role of insulin and glucagon on carbohydrate metabolism. 5+5
6. Answer any *three* questions from the following: 6×3 = 18
- (a) Mention different types of neurons. Differentiate between dye and stain. What is double staining? 2+2+2
- (b) Elucidate the histological features of thyroid gland of mammals with a neat diagram. Comment on the histological importance of colloids present in follicles of mammalian thyroid gland. 3+2+1
- (c) Compare gap junction and tight junction. State the function of glial cells. 4+2
- (d) State the location and function of parietal cells. Distinguish between holocrine and merocrine secretion. What is non-additive fixative? 2+3+1
- (e) Describe the histological structure of mammalian seminiferous tubule with suitable diagram. State the function of mast cell. 3+2+1

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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