

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. THIRD SEMESTER EXAMINATION, MARCH 2021

SECOND YEAR [BATCH 2019-22]

ZOOLOGY (HONOURS)

PAPER : VI(CC6)

Date : 16/03/2021

Time : 11 am – 1 pm

Full Marks : 50

Answer all the questions

Group-A

1. a) Differentiate between brumation and hibernation. Define potamodromous fish. (1+1)
b) What is TNZ? How does it differ from 'set point' concept? (1+1)
c) Mention the significance of AE1 in chloride shift. (1)
2. a) How BPG is functional in the maintenance of oxygen dissociation curve? (2)
b) What is allometry? Mention its biological significance. (1+1)
c) Name one mammal that undergoes aestivation. (1)
3. a) How osmoregulation in marine elasmobranch is been mitigated? (2)
b) Differentiate between Brown Adipose Tissue (BAT) and White Adipose Tissue (WAT). State the significance of 'ice nucleating substances'. (1+1)
c) Define 'Expiratory Reserve Volume' (ERV). (1)

Group-B

4. a) How does the action potential through the axon of a neuron get propagated to the next cell? (2)
b) Which role is being played by different chemicals in the neuromuscular junction leading to the muscular contraction? (3)
5. a) What is blood pressure? (2)
b) What are the physiological factors contribute to the rise in the blood pressure? (3)
6. a) Illustrate the importance of active and passive reabsorption mechanisms during the urine formation. (3)
b) Why the term 'countercurrent' mechanism is used to explain the process of urine formation? (2)

Group-C

7. a) State the functions of different ion transporters in the pancreatic duct cells. (2)
b) What is the importance of 'Perisinusoidal space'? (1)
c) Mention the roles of NHE & Pep T1 in absorbing amino acids. (2)
8. a) Why rhodopsin is significant in phototransduction? (2.5)
b) 'Different hair cells in the Organ of Corti are instrumental in the process of hearing' – elaborate. (2.5)

Group-D

9. a) Illustrate the histology of thyroid gland with labelled diagram. (3+1)
- b) State the composition of Bouin's fixative. (1)
10. a) 'Sperm is considered as an antigen by our immune system' – explain. (1)
- b) What are the functions of sertoli cell? (2)
- c) Mention the structure of a Graafian follicle. (2)

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