

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [2017-20]

B.A. /B.Sc. FOURTH SEMESTER (January – June) 2019

Mid-Semester Examination, March 2019

Date : 25/03/2019

Time : 2pm – 4pm

ZOOLOGY (Honours)

Paper: IV

Full Marks: 50

1. Answer **any five** questions of the following: [2×5]
 - a) What is acclimatization? How it differs from acclimation? [1+1]
 - b) Compare between regulation and conformity.
 - c) What is SNARE complex?
 - d) What is 'Haldane Effect'?
 - e) Write down the functions of sertoli cell and the prostate gland.
 - f) Write down the difference between hexokinase and glucokinase.
 - g) What is glycogen primer?
 - h) What is Q-cycle?
 - i) Mention the components of 'Portal triad'.
2. Answer **any four** questions of the following: [4×10]
 - a) Explain the role of voltage gated sodium and potassium channels in initiating an action potential. Why nerve impulse propagation is unidirectional? Why the neurons associated with emergency response are always myelinated? [5+3+2]
 - b) Explain why the surface area of motor end plate is considerably larger than a post synaptic neuron. Compare between smooth and skeletal muscle. Enumerate the importance of metabotropic receptors. Explain the role of Calcium ion regulation in skeletal muscle contraction. [2+3+2+3]
 - c) Give an account of 'tubular reabsorption and secretion' in mechanism of urine formation. What is hematuria? Describe about the 'T to R' state transition of haemoglobin with an established model. Define 'anatomical dead space'. [4+1+4+1]
 - d) Describe the rate limiting steps of glycolysis? How branching enzyme influence glycogenesis? Write down the significance of pentose phosphate pathway? [3+3+4]
 - e) How our body produce glucose from fatty acid? Describe the important respiratory enzyme complexes involved in ETC? Illustrate the structure of ATP synthase? [3+4+3]
 - f) What distinguishes tertiary from quaternary structure in proteins? Do all proteins have quaternary structures? Water soluble proteins fold into compact structures with non-polar cores – comment on their structure-function aspect citing appropriate examples. Ramachandran plots helps understand protein structures – comment. Derive Michaelis-Menten equation based on their assumptions. [1.5+2+1.5+5]
 - g) What is the importance of 'Perisinusoidal space'? Name the ducts found in exocrine pancreas. Illustrate the significance of numerous cells of 'Islets'. Mention the role of different zones of a 'Hepatic Acinus' in digestion. [1+1+4+4]

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