

Ref. No.: EX/M.Sc./P/II/301/20/2018

MASTER OF SCIENCE EXAMINATION, 2018

(2nd Year, 1st Semester)

Biophysics (PHY/TE/301)

Time: Two hours

Full Marks: 40

GROUP-A

Answer any *two* questions (5×2=10)

1. Describe 'Watson – Crick' model of DNA structure.
2. What do you mean by 'Gene'? Explain with diagram the structure of a gene.
3. Explain briefly with diagram how three muscles of middle ear play an important role in the activity of ear.
4. What is Sarcomere? Explain the mechanism of muscles contraction and expansion with suitable diagram the structure of a neutron with suitable diagram.

GROUP-B

Answer any *two* questions (15×2=30)

1. Describe with diagram the process of DNA replication. "DNA is a hereditary material" – Justify the statement with suitable experiments. [7 + 8]
2. Write down the differences between diffusion and osmosis. How do you get an idea about the molecular weight of a biological macromolecule by diffusion technique? Describe the terms: a) Tonicity b) Osmotic pressure c) Biological application of osmosis. [2 + 7 + 2 + 2 + 2]
3. a) Explain the importance of protein.
b) Describe the basic structure of protein. Explain with diagram how the properties of proteins change with their structure.
c) Describe the activities of protein in biological membrane. [2 + 8 + 5]
4. a) Explain the structure of a neutron with suitable diagram.
b) Explain the role of Na⁺, K⁺, Ca⁺ ions in nerve impulse propagation.
c) What is the role of carrier in the neuromuscular junction? [3 + 9 + 3]