

Printed Pages : 2



BT-306

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 154306

Roll No.

--	--	--	--	--	--	--	--	--	--

B. Tech.(SEM. III) (ODD SEM.) THEORY
EXAMINATION, 2014-15**MOLECULAR DYNAMICS & BIOENERGETICS**

Time : 3 Hours]

[Total Marks : 100

- Note :**
- 1) Attempt all questions.
 - 2) All questions carry equal marks.

- 1 Attempt any **four** parts of the following : **5×4=20**
- a) Describe the structure and action of the Na⁺/K⁺ -ATPase
 - b) Define Biomembranes. What are the different models used for explaining the structure of biomembranes?
 - c) Explain the role of signal transduction pathway in transport.
 - d) Differentiate between active transport and passive transport.
 - e) Write a short note on glucose and amino acid transport.

- 2 Write short note on any **four** : **5×4=20**
- a) Cell crawling
 - b) Muscle contraction
 - c) Myosin and cell movement
 - d) Association of actin filament association with plasma membrane
 - e) Structure and organization of actin filament.
- 3 Attempt any **two** parts of the following : **10×2=20**
- a) Explain the process of nitrogen fixation. Explain nitrogenase complex and its importance in nitrogen fixation.
 - b) Explain the pathway of pyrimidine degradation.
 - c) Explain generation and utilization of ATP.
- 4 Attempt any **two** parts of the following : **10×2=20**
- a) Write a short note on :
 - i) Yield coefficient
 - ii) Heat evolution in anaerobic cultures.
 - b) Derive equation for elemental balance and stoichiometry for cell growth in culture system.
 - c) Give a detailed account of thermodynamic efficiency of growth.
- 5 Attempt any **two** parts of the following : **10×2=20**
- a) Explain mechanism of Oxidative Phosphorylation.
 - b) Give a detailed account of ATP synthetase.
 - c) Describe the component of ETC and discuss oxidation of NADH.
-