



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

PAPER ID : 154415

Roll No.

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

B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15
MOLECULAR DYNAMICS AND BIOENERGETICS

Time : 2 Hours]

[Total Marks : 100

- 1 Write short note on any four of the following. **2.5x4=10**
 - (a) Facilitated transport
 - (b) Ionophores
 - (c) Action potential
 - (d) Active transport
 - (e) Na⁺ - K⁺ pump
 - (f) Membrane Potential.

- 2 Write short note on any two of the following. **5x2=10**
 - (a) Define cytoskeleton. Discuss the structural organisation of microtubules.
 - (b) What do you understand by cell movement and cell crawling?
 - (c) Describe the process of muscle contraction. Diagrammatically show the arrangement of filaments in muscle.

3 Attempt any two of the following. **7.5x2=15**

- (a) Explain the process of nitrogen fixation. Explain nitrogenase complex and importance in nitrogen fixation.
- (b) Explain the pathway of purine and pyrimidine degradation.
- (c) Explain the TCA and Glycolysis cycle. Explain the regulatory and energy formation steps for both the cycles.

4 Attempt any two of the following. **7.5x2=15**

- (a) Explain the stoichiometry of cell growth with extracellular product formation.
 - (b) Explain the process of formation of ATP through electron transport chain. Discuss Q-cycle.
 - (c) Discuss the mechanism of oxidative phosphorylation. What is the difference between substrate level phosphorylation and oxidative phosphorylation?
-