Printed Pages : 2

NBT405

(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) Membrame 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 Glycolosis 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 stiochiometry 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?