Printed Pages: 4 **NBT-405**

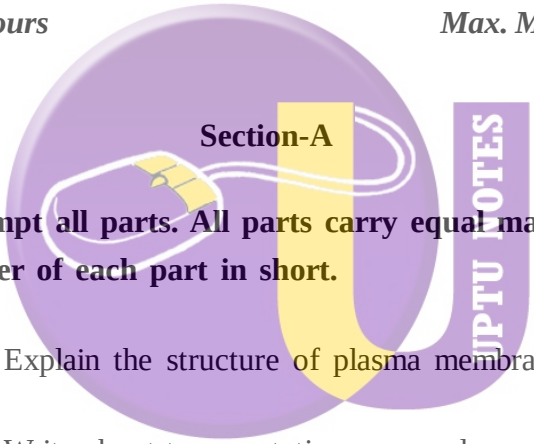
(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 154415	**Roll No.**

B.TECH.

Theory Examination (Semester-IV) 2015-16

MOLECULAR DYNAMICS & BIOENERGETICS

Time : 3 Hours ***Max. Marks : 100***



Section-A

Q.1 Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)

(a) Explain the structure of plasma membrane.

(b) Write about transportation across plasma membrane.

(c) What do you understand by active transport?

(d) Explain high energy compound?

(e) Write down about facilitated diffusion.

(f) Explain ionophores.

(g) Discuss about Na+/K+ pump.

(h) Write down about ATP synthase.

(i) Explain extrinsic and intrinsic proteins.

(j) What is P:O ratio ?

Section-B

Q2. Attempt any five parts. All parts carry equal marks: (10×5=50)

(a) Write down about signal transduction. Explain the role of transport in signal transduction.

(b) Define the process of muscle contractions and show the arrangement of filament in muscle with the help of suitable example.

(c) Write down the process of biological nitrogen fixation. Define the nitrogenase complex and its importance in nitrogen fixation.

(d) Expain the process of transamination and deamination in the metabolism of amino acid.

(e) Write down the pathway of purine and pyrimidine degradation.

(f) What do you understand by the energy coupling reaction of ATP and NADH?

(g) Define the process of pyruvate oxidation.

(h) When the idoacetate is the potent inhibitor of glyceraldehydes 3-phosphate dehydrogenase? What chemical reaction does occur between idoacetate and the enzyme?

Section-C

Note: Attempt any two questions from this section.

(15×2=30)

Q3. Write down the pathway of Glycolysis and Krebs cycle. Explain all the regulatory and energy formation steps for the cycle.

Q4. (a) What is the mechanism of Oxidative phosphorylation with the help of all complexes?

(b) Discuss Q cycle.

Q5. Explain stoichiometry and energetic analysis of cell growth and product formation.