LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc.** DEGREE EXAMINATION – **PLANT BIOLOGY & ADV. ZOOLOGY**

THIRD SEMESTER – NOVEMBER 2010

# PH 3204 - PHYSICS FOR BIOLOGY

Date : 12-11-10 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

PART-A

Answer **all** questions (10 x 2 = 20)

1. State the significance of Reynold’s number of a liquid.
2. What are cofactors? Name any one.
3. Define the resolving power of a microscope.
4. Find the nuclear radius of a Ho165 atom.
5. What are transducers?
6. Define ‘range’ and ‘stopping potential’ of an alpha particle.
7. Define intensity of sound.
8. State the laws of refraction of light.
9. Differentiate between diffusion and osmosis.
10. What are coupled reactions?

PART-B

Answer **any four** questions (4x7.5=30)

1. Write a note on photosystems I and II.
2. Explain in detail, how Oswald viscometer is used to compare the viscosities of two liquids.
3. Give a detailed account of temperature transducer.
4. Derive the expression for angular magnification for a compound microscope
5. Calculate the binding energy of an α- particle and express the result both in MeV and joules. (mass of α- particle =4.001506 amu, mass of proton = 1.007276 amu , mass of neutron = 1.008665 amu )

PART-C

Answer **any four** questions (4x12.5=50)

1. Explain with a neat diagram the process of glycolysis with all the intermediate steps.
2. Derive Poiseuille’s formula for the flow of liquid through a capillary tube.
3. Explain with a neat circuit diagram, the working of, (i) a magnetostriction oscillator and   
   (ii) Galton whistle.
4. (i) Give a detailed account of Pressure transducer .

(ii) State the laws of osmotic pressure

1. (i) Explain alpha ray spectrum. Give any four properties of alpha rays.

(ii) Discuss the theory of beta decay.

\*\*\*\*\*\*\*\*\*\*\*\*\*