LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – NOVEMBER 2015

PH 3206 - PHYSICS FOR BIOLOGY

Date : 12/11/2015   Dept. No.   Max. : 100 Marks
Time : 09:00-12:00

PART - A

Answer ALL the questions: **(10 × 2 = 20 marks)**

1. Define coefficient of viscosity. Give its unit.
2. Define surface tension.
3. What are the characteristics of laser light?
4. Mention any two applications of laser.
5. Write the expressions for magnification and resolving power of a microscope.
6. What are the main differences between light microscopy and electron microscopy?
7. The disintegration constant of a radioactive element is 0.00231 per day. Calculate its half-life and mean-life.
8. Write any two uses of radio isotopes.
9. What are transducers?
10. Name different types of electrodes.

PART - B

Answer any FOUR questions: **(4 × 7.5 = 30 marks)**

11. Write Stokes formula for viscous force. Describe Stokes method to find the coefficient of Viscosity of a liquid.
12. Explain absorption, spontaneous emission and stimulated emission.
13. Describe the construction and working of an ultraviolet microscope.
14. Draw the schematic diagram of a GM counter and explain its working.
15. How is radiometric dating used to find the ages of geological and biological specimens?
16. Explain briefly the various types of surface electrodes.

PART - C

Answer any FOUR questions: **(4 ×12.5 = 50 marks)**

17. Explain the drop weight method to find the surface tension of water and the interfacial Surface tension between water and kerosene.
18. With neat schematic and energy level diagrams, explain the working of Ruby laser.
19. Explain the working of Nd:YAG laser with necessary diagrams.
20. Describe the optical principle, construction and working of a compound microscope.
21. Derive expressions for half-life and mean-life of a radioactive substance from the law of radioactive disintegration.
22. Explain the design and working of thermistor type temperature transducer.

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