LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc.** DEGREE EXAMINATION – **CHEMISTRY**

SECOND SEMESTER – **APRIL 2012**

# PH 2103/2100 - PHYSICS FOR CHEMISTRY - I

Date : 23-04-2012 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

**PART - A**

**Answer ALL questions: (10x2=20)**

1. What are generalised coordinates?
2. Define the term velocity. Write its unit.
3. Write Newton’s law of gravitation.
4. Write the principle of equivalence in gravitation.
5. Write Hook’s law.
6. Define surface tension of a liquid.
7. What is a polaroid?
8. Differentiate between Fresnel and Fraunhofer diffraction.
9. Define unit cell.
10. What is the significance of Miller indices?

**PART - B**

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

11. Explain the significance of velocity- time graph of a moving body.

12. (i)Two bodies of mass 10kg and 25kg are placed at a distance of 0.2m apart. Find the force between them. G = 6067x10-11 S.I. units. (4.5)

(ii) Define parking orbit. (3)

13. Discuss the atomic arrangement in a sodium chloride crystal .

14. Briefly explain circular and elliptical polarization.

15. Write in detail, the molecular theory of surface tension.

**PART - C**

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

16. Derive Lagrange’s equation for a simple pendulum.

17. (i)Write Kepler’s laws of planetary motion

(ii)What is escape velocity? Derive the expression for the escape velocity of a body.

18. Derive Poiseuille’s formula for the flow of liquid through a capillary tube.

19. Explain Bragg’s experiment of X-ray diffraction and arrive at Bragg’s law..

20. Explain in detail, Fraunhofer diffraction at a single slit and arrive at the expression for the secondary maxima.

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