



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – MATHEMATICS

FOURTH SEMESTER – APRIL 2017

PH 4200- PHYSICS FOR MATHEMATICS

Date: 29-04-2017
09:00-12:00

Dept. No.

Max. : 100 Marks

PART A

Answer **ALL** questions:

10 x 2 = 20 marks

1. Define Optical activity in polarization.
2. What is known as specific rotation?
3. State Kirchoff's current and voltage law.
4. State Biot-Savart's law.
5. What is known as half-life period of a nucleus?
6. State Pauli's exclusion principle.
7. Define common mode rejection ratio of an OP-Amp.
8. What is known as flip-Flop?
9. State Heisenberg's uncertainty principle.
10. What do you understand from normalization condition?

PART B

Answer any **FOUR** questions:

4 x 7.5 = 30 marks

11. Explain the geometry of Nicol prism.
12. Explain Carey-Foster's bridge experiment to determine the specific resistance of the given wire.
13. Discuss $B.E/A$ versus A curve for nuclear energy.
14. List the characteristics of an ideal OP-Amp.
15. Explain the Davisson and Germer experiment.

PART C

Answer any **FOUR** questions:

4 x 12.5 = 50 marks

16. Explain Plane diffraction grating and discuss the experimental procedure for determination of wavelength of the spectral line.
17. Determine the magnetic field at a point due to a current carrying circular coil.
18. Derive an expression for radius of the n^{th} orbital of an atom.
19. Explain Op-Amp as summing and Difference Amplifier.
20. Derive the time independent Schrodinger equation.

\$\$\$\$\$\$\$\$