

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



U.G. DEGREE EXAMINATION – ALLIED

FOURTH SEMESTER – APRIL 2023

16/17/18UPH4AL01 – PHYSICS FOR CHEMISTRY - II

Date: 04-05-2023

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

PART – A

(10 x 2 = 20 Marks)

Q. No. Answer ALL questions

- 1 What is an amplifier?
- 2 What are the two types of extrinsic semiconductors?
- 3 Write any two industrial applications of X -rays.
- 4 Define the term mass defect.
- 5 How are the nucleons held together inside the nucleus?
- 6 State Pauli's exclusion principle.
- 7 How is ionic bond formed?
- 8 State Wien's displacement law.
- 9 Distinguish between atomic number and mass number.
- 10 What are matter waves?

PART – B

(4 x 7.5 = 30 Marks)

Answer any FOUR questions

- 11 With a neat circuit diagram explain the working of an inverting amplifier using OPAMP.
- 12 What is an LED? Describe its working.
- 13 Obtain an expression for the radius of the n^{th} orbit using Bohr's atom model. Determine the corresponding energy of the atom.
- 14 Give a brief note on continuous and characteristic X-rays.
- 15 Define the terms (a) half life (b) average life. Find out their relationship with the decay constant(λ).
- 16 Write short notes on various types of defects in crystals.

PART – C

(4 x 12.5 = 50 Marks)

Answer any FOUR questions

- 17 With neat circuit diagrams, explain the function of summing and difference amplifiers using OPAMP.
- 18 What are the different types of photoelectric cells? Explain any two in detail.
- 19 Explain Millikan's experiment with the help of a diagram and prove Einstein's photoelectric equation.
- 20 Write the semi – empirical mass formula for a nucleus and explain all the terms.
- 21 With a neat diagram, explain Davission and Germer experiment.
- 22 Derive Schrodinger wave equation from plane wave equation.
