B.Sc. Degree Examinations – Even Semester 2021

II Year IV Semester

Atomic Physics

Max Marks : 25

Answer any Five Questions (5*5=25)

1. Give the principle, theory and working of Electron microscope. Mention some of its important applications.

2. Singly ionized Neon 24 particles enter Bainbridge mass spectrograph with a velocity of 10^5 m/s. They are deflected by a magnetic field of flux density 0.08 Weber/m^2. Calculate the radii of their paths. The mass of nucleon is 1.67 x 10^{-27} kg.

3. What is Zeeman Effect? Describe the experimental arrangement for the normal Zeeman Effect.

4. The photoelectric threshold for a metal is 4000 Å. Find the kinetic energy of an electron ejected from it by radiation of wavelength 1400 Å. (h=6.62 x 10^{-34} Js)

5. Describe Laue's experiment and point out its significance.

6. Explain photoelectric cells and give their uses.

7. (a) Define Electrical Conductivity

   (b) What are the merits and limitations of classical free electron theory?