

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the detailed procedure of Half-life measurement. (8)
(ii) Write notes on Elastic scattering and inelastic scattering. (8)

Or

- (b) (i) Explain the Transmission method for determining the cross section. (8)
(ii) Write notes on types of scattering cross section (8)
12. (a) (i) Explain nuclear fission process for U-235 with help of a neat sketch. (8)
(ii) Explain the nuclear fusion reaction process with example. (8)

Or

- (b) (i) Explain the nuclear fuel cycle with neat diagram. (8)
(ii) Explain the production of Beryllium and its Uses. (8)
13. (a) Explain (i) FLUOREX process with diagram and (ii) spent fuel processing. (8 + 8)

Or

- (b) Explain the working principle with a diagram of solvent and extraction equipment used in nuclear industry. (16)
14. (a) Explain the construction and working principle of the Liquid-Metal fast breeder reactor with a neat sketch. (16)

Or

- (b) Explain the principle of operation of fusion reactors in detail. (16)
15. (a) (i) Explain the components of nuclear safety. (8)
(ii) Discuss the criteria for the nuclear and radiation accidents and how do you evaluate the nuclear accidents. (8)

Or

- (b) (i) State long term effects and beneficial effects of nuclear radiation. (8)
(ii) Give account on different types of radioactive wastes. (8)