

7. What is beta decay ? Give its types. Explain features of beta spectra and origin of neutrino. 5

8. Define nuclear cross section. Discuss different types of nuclear cross-sections. 5

**SECTION—C**

9. This question is compulsory. Attempt any *five* questions. Each question carries 2 marks.

- (a) Differentiate between isotopes and isobars with examples.
- (b) What are magic numbers ?
- (c) Nuclear forces are charge independent forces. Explain.
- (d) What is internal conversion ?
- (e) Distinguish between artificial and natural radioactivity.
- (f) Define half life time and disintegration constant of a radioactive nuclei.
- (g) What is stripping and pick-up reaction ? 5×2=10

**Roll No.** .....

**Total No. of Pages : 2**

**PC 11486-NH**

**CS/2111**

**NUCLEAR AND RADIATION PHYSICS—C**

**Semester—V**

Time Allowed : Three Hours]

[Maximum Marks : 30

**Note :-** The candidates are required to attempt *two* questions each from Sections A and B. Section C will be compulsory.

**SECTION—A**

- 1. Explain the term mass defect and binding energy. Discuss how binding energy varies with the mass no. A. 5
- 2. Name the force existing between nucleons. Discuss its salient features. 5
- 3. What are magic numbers ? Give experimental evidences of magic numbers. 5
- 4. Discuss Fermi gas model. 5

**SECTION—B**

- 5. (a) Discuss alpha spectra. 3
- (b) State Gieger Nuttal law and give its importance. 2
- 6. What do you mean by radioactive equilibrium ? Deduce the condition for secular equilibrium. 5