

W-3252**M.Sc. (Fourth Semester) Examination, June-2020****PHYSICS****Paper - 401****Nuclear Physics***Time : Three Hours**Maximum Marks : 85**Minimum Pass Marks : 29***Note :** Attempt **all** questions.

- Q.1. Describe in detail the electric and quadrupole moment of nuclei. 17
- Q.2. Derive a relation between laboratory and centre of mass co-ordinate system for scattering cross section and kinetic energy. 17
- Q.3. Explain isobaric mass formula. Calculate the Z_0 value for $A=63$. 17
- Q.4. Explain Fermi-theory of β - decay using suitable example. Why coulomb correction is done to final fermi equation for β - decay. 17
- Q.5. Explain the differences between compound and direct nuclear reactions. What information can be drawn out from the graph plotted between cross - section and Kinetic energy of projectile in resonance nuclear reactions. 17

