B.Sc. DEGREE EXAMINATION,ODD SEMESTER 2020
III Year V Semester
Nuclear Physics

Max.marks :25

Answer any **FIVE** questions $(5 \times 5 = 25)$ Marks

1. Give the main assumptions of the shell model of the nucleus and how it explains the magic numbers.
2. (i) State the laws of radioactive disintegration. (ii) Calculate the time required to for 10% of a sample of thorium to disintegrate. Assume the half-life of thorium to be 1.4x1010 years.
3. Explain the working of the cyclotron.
4. Explain the working of Geiger-Muller counter. What is dead time and recovery time of operation of GM counter?
5. Discuss the fundamental interactions between the elementary particles.
6. List out the properties of alpha and beta rays. Ionisation produced by gamma rays is less than alpha and beta rays- give reason.
7. Explain the latitude and altitude effects of cosmic rays.