



# THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Re-accredited (2<sup>nd</sup> Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

## Backlog Arrear Examination, March 2021

**PSP 5403**

**Max.Marks : 75**

**Particle detector and Accelerator**

**Time : 3 Hrs**

**Answer any Five of the following Questions**

**(5 X 15 = 75)**

- 1) Explain the Bohr's calculation of a high energy particle interacts with matter and hence arrive Bethe Bloch equation.
- 2) Obtain the Compton scattering for high energy photon interact with matter.
- 3) Discuss the energy resolution and efficiency of a high energy particle detector.
- 4) Give the principles of semiconductor detectors. Explain its construction and working.
- 5) Elucidate the principle, construction and working of photomultiplier tube.
- 6) Explain the different types of Analog to Digital Converter used in particle detector.
- 7) Describe the principle, working, and construction of Cockcroft–Walton machine.