



# 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 5312**

**Laser & Nonlinear Optics**

**Time: 3 Hrs**

**Marks: 75**

**Answer Any FIVE of the following questions:**

**(5\*15=75)**

1. Establish the relation between Einstein's coefficients.
2. What are the necessary conditions to achieve lase action? Obtain the rate equations for a three-level laser system.
3. Explain the construction and working of Ruby Laser
4. What is meant by Q-switching? Give a detailed account on any three methods of the same.
5. Discuss the variation of Index Ellipsoid of an anisotropic medium in the presence of an external electric field.
6. Outline the distinguishing features of Raman-Nath diffraction.
7. Discuss second harmonic generation in detail.