THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

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

Backlog Arrear Examination, March 2021

Course Code: PHY 2482/2562   **Time: 3 Hrs**

Course Title: Physics for Maths II   **Max. Mark: 75**

Answer any <u>five</u> of the following questions   **5X15=75**

1. Applying Gauss law, Obtain the expression for electric field due to an uniformly charged sphere.

2. Obtain the expression for the capacitance of the parallel plate capacitors with and without dielectric medium.

3. Discuss the theory of torque on a current loop.

4. Deduce the equation for the impedance and phase of a resistor, inductor and capacitor connected in a series circuit.

5. Draw and explain the forward and reverse bias characteristics of pn junction diode.

6. Explain the working of opamp as an integrator and differentiator.

7. Describe the working of 4 bit synchronus counter with proper truth table and timing diagram

****