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 : Maths for Physics II **Marks: 75**

Course Code : MAT / MAS 1432 / 1552 **Time : 3 hrs**

Answer any 5 out of 7 : **(5 X 15 = 75)**

1. Solve $\frac{dy}{dx} = \frac{x+2y-3}{2x+y-3}$

2. Solve $(D^2 + 1)y = x^2e^x + xcosx$

3. Solve $p^2 + q^2 - 2px - 2qy + 1 = 0$ by using Charpit's Method.

4. Find the fourier series for the function $f(x) = e^x$ in $(-\pi, \pi)$

5. Expand $sinx$ in the half – range cosine series in $0 < x < \pi$

6. Derive the Rodrigue's formula for legendre polynomial.

7. Find the fourier series for the function $f(x) = x^2$ in $-\pi \leq x \leq \pi$

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