

**Dept. of Physics, Jangipur College,
Murshidabad, WB**

Sub: Announcement of Project Topics for 1st Semester (MAJOR)

Total Marks: **10**

Submission Date: **18/03/2024 (MALE), 19/03/2024 (FEMALE)**

A. Choose Any One of the following Major topics:

1. Vector (Gradient, Divergence, Curl).
2. Eigenvalue, Eigenvector and Diagonalization of Matrix.
3. Homogeneous 2nd order Differential Equation of Constant Coefficients.
(Evaluation of Complementary Function and Particular Integral).
4. Curvilinear Coordinates.
5. Lagrange's Method of Undetermined Multiplier.
6. Dirac Delta Function and its properties.

B. Choose Any One of the following SEC topics:

1. Ohm's law, Network theorem: KVL and KCL, Maximum power transfer.
2. Series and Parallel combinations of Resistor (R), Inductor (L), Capacitors (C).
3. Simple schematic and working principle of DC Motor and DC Generator.
4. AC Motor Single Phase (split phase type). Advantage and disadvantage of Single phase motor.
5. Response of Resistor (R), Inductor (L), Capacitors (C) in AC circuit. Relation of Voltage and Current for R, L, C in AC circuit.
6. AC motor 3 Phase. Advantages of 3 phase motor over single phase motor. Power factor.