

JC Bose UNIVERSITY OF SCIENCE & TECHNOLOGY, YMCA FARIDABAD

DEPARTMENT OF MECHANICAL ENGINEERING

B.Tech. Mech Engg IV SEMESTER Strength of Materials -II (PCC-ME-404-21)

Time: 1.5 Hours

Class test 1

2025-26
Max. Marks:30

Q.1. Drive differential equations of equilibrium:

10 CO2

Q.2. The displacement field in micro units for a body is given by

$$\mathbf{u} = (x^2 + y)\mathbf{i} + (3 + z)\mathbf{j} + (x^2 + 2y)\mathbf{k}$$

Determine the principal strains at (3, 1, -2) and check on their invariances.

10 CO2

Q3. Explain following theories of failure and also write their limitation

10 CO4

- Maximum principal stress theory
- Maximum Principal strain theory
- Maximum shear stress theory