



PART - B

Answer **one** question from **each** Module.

Module - I

- II. Design a single bolted double cover butt joint to connect boiler plates of thickness 10 mm, for maximum efficiency. M16 bolts of Grade 4.6 and Fe 410 plates are used. Sketch the connection details and also compute the efficiency of the joint.

OR

- III. Design a laterally unrestrained beam simply supported over a span of 2 m. It carries uniformly distributed load of 56 kN/m. Provide all the necessary checks.

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Module - II

- IV. Design a built up column carrying a factored axial load of 1800 kN. The length of the column is 8m. It is effectively held in position at both ends and restrained against rotation at one end. Fe 410 grade steel with $f_y = 250$ MPa is used. Design also the lacing system.

OR

- V. Design the gusseted base for a column ISHB 450 with cover plates 400×20 mm on both faces. The factored load on the column is 5000 kN. Pcc M_{10} is provided under the base plate.

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