

### D.S.S. (Assignment-3)

- (1) An angle section ISA 5030x60 mm is used as a tension member with its longer leg connected by 12 mm dia. rivets. Calculate its strength. What will be its strength if it is bolt welded? Take  $\sigma_{at} = 150 \text{ N/mm}^2$ .
- (2) A tie of a roof truss consists of double angle ISA 10075x10 mm with its short legs back to back and long legs connected to the same side of a gusset plate, with 16 mm diameter rivets. Determine the strength of tie in axial tension, taking  $\sigma_{at} = 150 \text{ N/mm}^2$ ; Tack rivets have been provided at suitable pitch.
- (3) Design a T-section to carry an axial tension of 300 kN. Take  $\sigma_y = 250 \text{ N/mm}^2$ . Also design the riveted joint at the end.
- (4) Design a channel section to carry an axial tension of 300 kN. Take  $\sigma_y = 250 \text{ N/mm}^2$ . Also design the riveted joint at the end.
- (5) A built-up column consists of ISMB 300 @ 44.2 kg/m, having two plates, each of 10 mm thickness, attached to each flange so as to have equal resistance about either axis. Determine the load the column can safely carry over an effective length of 4.5 m. Take  $\sigma_y = 250 \text{ N/mm}^2$ .