

RE VERA INSTITUTE OF TECHNOLOGY

CIVIL DEPARTMENT

ASSIGNMENT NO- 3

SUBJECT-D.S.S

CLASS-T.Y (A)

1) State with sketch different single and built-up sections of structural steel members used as tension member

2) State and explain modes of failure of axial tension member with sketch.

3) Enlist two types of sections used as a tension member along with sketches.

4) The longer leg of a single angle $90 \times 60 \times 10$ mm is connected to the gusset

Plate with 4 bolts in a line of 20 mm diameter at a pitch of 60 mm for this tension member. Determine the strength of the angle

5) Design a suitable angle section as a tie member in a truss to carry service load of 215 kN. Use double angle section connected back to back on either sides of 12 mm thick gusset plate by means of 4 – 20 mm dia. bolts in one line. Assume design strength of 20 mm dia Bolt = 45.3 kN, $\alpha=0.8$, $\beta=1.08$ $\gamma_{mo}= 1.1$, $\gamma_m= 1.25$, $f_y= 250$ MPa, $f_u= 410$ MPa

6) A single angle $100 \times 75 \times 10$ mm is used as a tension member. Connected to 12 mm thick gusset plate at ends with 5 of 18 mm dia. bolts. Bolts are pitched at 50 mm. Find Net area, if
i) longer leg connected to gusset plate ii) shorter leg connected to gusset plate.