Code: CE6T2

**III B.Tech-II Semester–Regular/Supplementary Examinations–March 2018**

# DESIGN AND DRAWING OF STEEL STRUCTURES
## (CIVIL ENGINEERING)

**Use of IS 800-2007 & IS: 875- Part III and Steel Tables are allowed**

Duration: 3 hours                                    Max. Marks: 70
## PART – A

Answer any *ONE* question.                          1 x 28 = 28 M

1. Design the cross-section of a plate girder of span 26m to carry a superimposed load of 45kN/m. Using end bearing stiffeners also design the connections. Use Fe 415 steel. Draw to scale
   a) the cross-section      b) longitudinal section of the girder showing the stiffeners.

2. Design a double laced column for a load carrying capacity of 1400 kN. The effective length of the column is 5m. Use channel sections back to back for the design with neat sketches.

## PART – B
Answer any *THREE* questions.  All questions carry equal marks.
                                                      3 x 14 = 42 M
   3. a) What are the advantages of welding over riveted connections.                                             6 M

b) A tie member consists of 2 ISMC 350@ 413kg/m. The channels are connected on either side of a 12mm thick gusset plate. Design the welded joint to develop the full strength of the tie. However the overlap is to be limited to 400mm.     8 M

4. Design a double angle tension member connected on each side of a 10mm thick gusset plate, to carry an axial factored load of 400kN. Use 20mm bolts. Assume field connection.     14 M

5. An ISMB 350 @ 514 N/m section is used as a beam over a span of 6m, with simply supported ends. Determine the maximum factored u.d.l that the beam can carry if the ends are restrained against torsion but compression flange is laterally unsupported.     14 M

6. Design a slab base to carry an axial factored load of 1500kN. The column is ISHB 350 @ 710N/m and it is supported on a pedestal made of M25 concrete.     14 M

7. What is plate girder? List out the elements of plate girder with neat sketch. And also explain the functions of each element?     14 M