Total No. of Questions : 4]

SEAT No. :

PE17

[Total No. of Pages : 2

[6579]-317
T.E. (Civil Engineering) (Insem)
DESIGN OF STEEL STRUCTURES
(2019 Pattern) (Semester - I) (301003)

Time : 1 Hour 15 Min.] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Assume suitable data if necessary.***
2) ***Figures to the right indicate full marks.***
3) ***Use of non-programmable electronic calculator is allowed.***
4) ***Use separate answer book for each course.***
5) ***Attempt only that paper for which you have appeared.***

Q1) a) Explain characteristic strength, characteristic load and partial safety factor in limit state of design. **[6]**

b) Design a double angle tension member connected on either side of 12 mm thick gusset plate to carry a ultimate load of 500 kN. **[9]**

OR

Q2) a) Explain design philosophy of limit state method for strength and serviceability. **[5]**

b) Design tie member of roof truss to carry an axial tensile load of 180 kN using single unequal an angle Section connected with 10mm thick gusset plate. Use M16 bolts. **[10]**

Q3) a) Determine design compressive strength of single ISA 90×60×6mm connected with 8mm thick gusset plate using two bolts at each end. Assume center to center length of connection is 2.20m. **[7]**

b) Check the adequacy of 2-ISA 90×90×8mm Subjected to factored compressive load of 250kN. Assume angles are connected on either side of 10mm thick gusset plate by using two bolts at each end. Center to center length of Stat is 2.30m. **[8]**

OR

P.T.O.

Q4) a) What are the parameters that affect design strength of compression members. **[5]**

b) A Column of 8 m long consist of two ISMC 350 @ 42.10 kg/m are placed back to back the ends of Column are effectively held in Position but does not restrained against rotation at both ends. **[10]**

Find

i) Economical Spacing between the channels

ii) Also calculate design strength of Column Compressive Strength.

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