

KATHMANDU UNIVERSITY
End Semester Examination [C]
July, 2017

JUL 06 2017

Level : B. E.
Year : IV
Time : 2 hrs. 30 mins.

Course : CIEG 402
Semester : I
F. M. : 40

SECTION "B"

Use of IS 800:2007, IS 883:1994, IS 875 part III and Steel Table are permitted. Attempt ALL questions.

1. List the advantages of welded connection over rivet connection. A tie member consisting of an IS steel 80*50*8 mm is welded through 12 mm thick gusset plate. Design welds to transmit load equal to design strength of members. Adopt size of weld 6 mm and $f_y = 250$ MPa. [2+6]
2. Design a column using Channel section whose unsupported length is 10m. It is restrained in position but not in direction. The service load is 900 kN. [8]
3. In a Fink type roof truss located at Dhulikhel. Determine the Dead load, Live load and Wind pressure with following data: [8]

Overall length of building = 45 m
Overall width of building = 16 m
Width(C/C of roof columns) = 15.5 m
Rise of truss = 1/4 of span
Height of column = 11 m
Roofing and side covering = A.C. Sheets
Take the permeability of the building as zero.

OR

By using Fe 410 grade steel, design a welded plate girder of span 25 m to carry superimposed load of 35 kN/m. Avoid the use of bearing and intermediate stiffeners. [8]

4. A simply supported Sal beam of select grade in outside location carries a UDL of 20 kN/m inclusive of self-weight. The clear span of beam is 4.5 m. Design the beam using Rectangular and I – section timber. [4+4]
5. Design a Gantry Girder for an electric overhead crane with the following data: [8]
Capacity of Crane = 220 kN, Span of gantry girder = 6.5 m, Span of crane girder = 17 m,
Self wt. of crane girder = 180 kN, Self wt. of Trolley = 70 kN, Min. Hook approach = 1 m,
Distance between wheels = 3.25 m and self wt. of rails = 0.3 kN/m. Check only for Moment capacity and Combined local capacity.

