6th Sem / Branch : Civil
Sub. : Steel Structure Drawing

Time : 3Hrs.   M.M. : 100

SECTION-A

Note: Attempt any four Questions   (4x25=100)

Q.1   Draw the front view of the ridge joint and connection of purlin with roof covering in a single fink Roof truss with the following design detail of various elements like   (CO1)

Principal rafter 2-ISA 60x60x6 mm

Main tie 2-ISA 60x60x6 mm

Upper tie member = single angle ISA 60x60x6 mm

Struts-single angle ISA 60x60x6 mm

Cleat and purlin angle - single ISA 60x60x10 mm

Shoe angle-2nos, ISA 60x50x6mm

Bearing plate 400 mm x 400 mm x 12 mm

Rag bolts 15mm f 150 mm long

Cement concrete block (1:1.5:3) 400mm x 400m x 200mm

Thickness of Wall = 400 mm

Gusset plate 8mm thick

Clear Span = 6 mt

Pitch of truss = 30degree

Roof covering material : Corrugated G. I Sheets

Q.2   Draw the front and side elevation of splicing arrangement of two unequal columns having different flange width the following data: (CO2)

Lower Column = ISHB 250 @ 536.6 N/m

Upper Column = ISHB 200 @ 392.4 N/m

Distribution Plate = 250 mm x 250 mm x 20 mm

Cover plates = 400mmx250mmx20mm

Thickness of packing plate = 25 mm

Cleat angle = ISA 60x60x10 mm

Nominal diameter of rivets = 20mm

Use steel Table for other details

Q.3 Draw the plan, front and side elevation of Column base from the following data: (CO2)

Column = ISHB 350 @ 661.2 N/m

Base Plate = 700mmx600mmx20mm

Cover plate = 2 No's 250 mm wide and 10 mm thick

Flange cleat angle = ISA 100 x 100 x 10 mm

Web Cleat angle = ISA 100 x 100 x 10 mm

Holding down bolts = 16mm f 200 mm long-4 No's Rag bolts

Nominal diameter of rivets = 16 mm

Reinforced Cement Concrete slab base = 1000 mm x900 mm x 500mm

Reinforcement in slab base = 12mm f @150 mm C/c both ways

Q.4 Draw to a suitable scale front elevation and side elevation of a framed beam to beam connection from the following data. (CO3)

Main beam = ISMB 500 @ 933.9 N/m

Secondary beam = ISLB 250 @ 365.9 N/m

Web cleat angle = ISA 90x90x10 mm

Nominal Diameter of rivets = 20 mm

Use Steel Table for other details

Q.5 Draw to a suitable scale the front elevation, sectional plan and cross section of a simple plate Girder from the following given data: (Co4)

Clear span of plate girder 12 mt

Web plate = 1000 mm x 12 mm

Top and bottom flange cover plates = 300mm x 12mm thick

Flange angled=4 No's ISA-90 mm x 90mm x 10 mm

Bearing Plate = 200mm x 300 mm x20mm

Size of concrete block = 300mm x 300 mm x 200 mm

Nominal diameter of rivets = 20 mm