

17328

21819

4 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following :

20

- (a) Draw welding symbols of following :
 - (i) Single 'V' butt weld
 - (ii) Fillet weld
- (b) Draw single line symbols for
 - (i) Coupling
 - (ii) Cap
 - (iii) Tee
 - (iv) Plug
- (c) Draw roller type pipe support.
- (d) Draw conventional representation of following rivetted joints :
 - (i) snap head
 - (ii) pan head
- (e) Represent the welding drawing of two shafts with equal diameter welded end to end by mean of square butt weld with convex centre of site.
- (f) Write the nature of intersection in the following cases, with sketches.
 - (i) Prism to prism
 - (ii) Prism to cone
- (g) Prepare freehand proportionate sketch when a column ISLB 200 is connected to similar column.

2. Attempt any TWO :

16

- (a) A vertical square prism, base 60 mm side is completely penetrated by a horizontal square prism, base 40 mm side so that their axes are 8 mm apart. The axis of the horizontal prism is parallel to VP, while the faces of both prisms are equally inclined to V.P. Draw the projections showing lines of intersection.
- (b) A vertical cylinder of 70 mm diameter is penetrated by another cylinder of 50 mm diameter. The axis of the penetrating cylinder is parallel to both HP and VP and is 8 mm away from the axis of the vertical cylinder. Draw its projections showing curves of intersection.
- (c) A cone base diameter 70 and axis height 65 mm is kept on its base. It is penetrated by a horizontal cylinder of 35 mm diameter the axis of which is parallel to V.P. and 20 mm above the base of the cone. Axis of the cylinder is 5 mm in front of the axis of the cone. Draw the projections of solids showing curves of intersection.

3. Attempt any TWO :

16

- (a) Draw double rivetted butt joint (double strap) in two views.
- (b) Draw sectional F.V. and T.V. Take suitable plate thickness.
- (c) Draw a single line developed orthographic view of piping system shown in Figure No. 1.

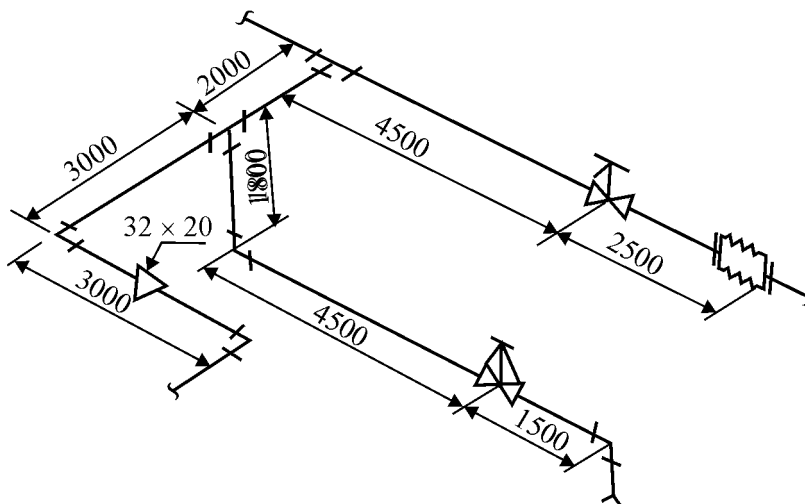


Fig. No. 1

4. Attempt any TWO :**16**

- (a) Show by means of neat dimensional sketches the shapes of following rivets :
- (i) Conical head
 - (ii) Rounded counter sunk head
 - (iii) Flat head
 - (iv) Rivet fitted in the workshop without countersunk.
- (b) Draw creation drawing in two views for a vertical vessel 7 m height, 2 m diameter and thickness 50 mm. It is elevated at height of 13 m from the ground to the top of vessel. Assume suitable members for structure showing welding symbols.
- (c) Draw sketches of
- (i) Pratt truss
 - (ii) Fink truss

5. Attempt any TWO :**16**

- (a) Draw single line orthographic symbols for flanged and screw pipe fittings as per IS.
- (b) Show by neat proportionate sketches, when two unequal I-Section ISMB 500 and ISLB 300 is connected to make long single column.
- (c) (i) A T-section formed by welding two MS plates by fillet weld of 4 mm leg length. The welding is continuous on arrow side and regular intermittent on the other side, starting with a welded length of 30 mm. The total number of weld elements are three, followed by unwelded length of 25 mm. Prepare of unwelded length of 25 mm. Prepare a freehand sketch.
- (ii) Prepare a bill of material for horizontal pressure vessel. Assume suitable data, if necessary.

P.T.O.

6. Attempt any TWO :

16

- (a) Figure No. 2 shows roof truss for 6 m span. Draw detail connection of joint at A, B, C & D. Dimensions are in mm whose not given.

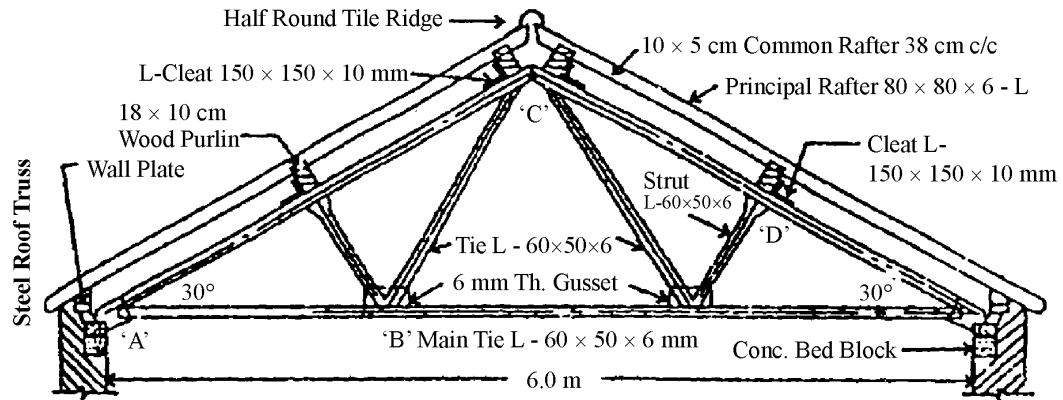


Fig. No. 2

- Note : (i) All rivets are 15 mm diameter.
(ii) All gussets are 6 mm thick.
(iii) All members of truss are 6mm thick.

- (b) Prepare a structural drawing of following :

- (i) Beam to beam connections. (ii) Column base connections.

Assume suitable dimensions.

- (c) (i) Draw the following pipe supports :

- (1) Saddle (2) Hanger

- (ii) Prepare erection drawing of column supports.