

17328

14115

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 IST section $H = 150$, $t_w = 10$, $t_f = 8$, $b = 140$.
- b) Draw symbols for:
- (i) Seam weld
 - (ii) Square butt weld
 - (iii) Fillet weld
 - (iv) Plug weld
- c) Draw single and double line symbols for:
- (i) Reducing socket
 - (ii) Cross
 - (iii) Check valve
 - (iv) Plug

P.T.O.

- d) Draw following conventional symbol for riveted joints:
 - (i) Rivet fitted in the workshop without countersink.
 - (ii) Rivet with countersunk on one side, fitted on site and hole drilled on site.
- e) Draw hanger type pipe support.
- f) A wheel rim is to be prepared by bending a plate of 6 mm thick and joining the ends by welding. Four arms of circular cross section are used for joining rim and main boss equally spaced. They have to be welded all round on both sides. Prepare a welding drawing showing appropriate symbols.
- g) Prepare free hand proportionate sketch, when a column ISLB 200 is connected to similar column.

2. Attempt any TWO of the following:

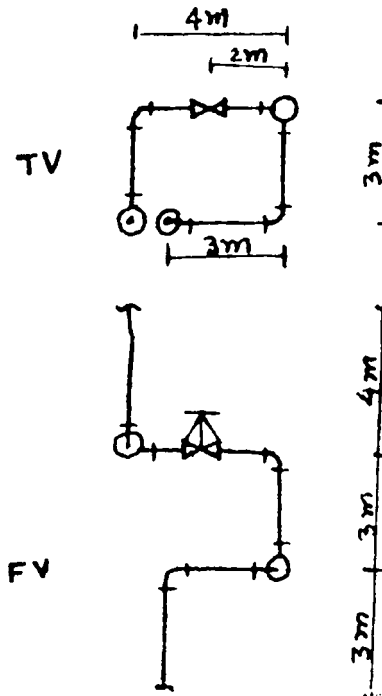
16

- a) A vertical cylinder of 75 mm diameter is penetrated by another cylinder of same size. The axis of penetrating cylinder is parallel to both HP and VP and is 9 mm away from the axis of vertical cylinder. Draw the projections showing curves of intersection.
- b) Draw erection 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) Show by neat proportionate sketches when two unequal I-section ISMB500 and ISLB-300 is connected to make long single column.

3. Attempt any TWO of the following:

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- a) Figure No. 1 shows orthographic layouts of a piping system. Draw the single line isometric view.

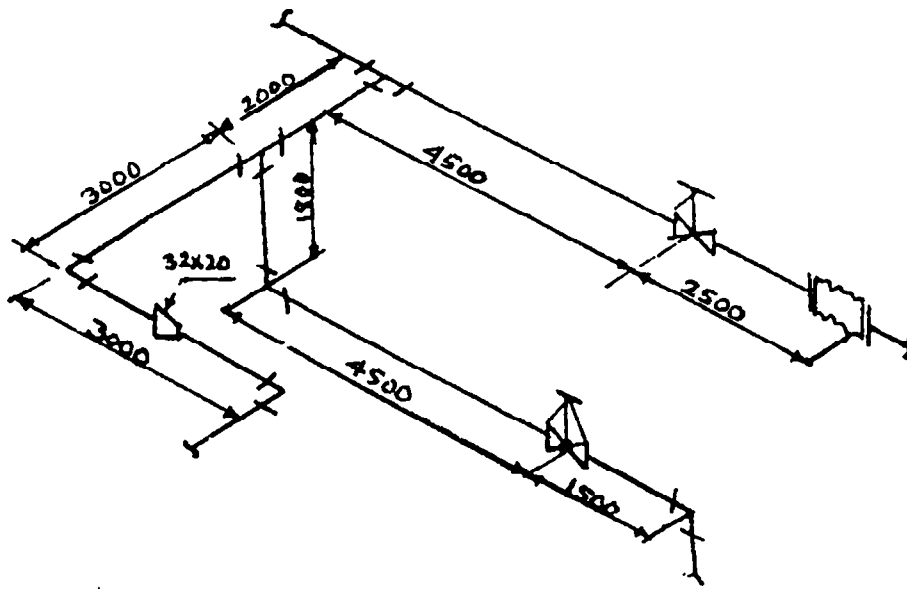
**Fig. No. 1**

- b) Draw a neat sketch of double riveted double strap butt joint. Draw sectional FV and TV. Take suitable plate thickness.
- c) A vertical cone, diameter of base 75 mm and axis 100 mm long, is completely penetrated by a cylinder of 45 mm diameter. The axis of the cylinder is parallel to HP and VP and intersects the axis of cone at a point 28 mm above the base. Draw the projections of solids showing curves of intersection.

4. Attempt any TWO of the following:

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- a) A vertical cylinder of 60 mm diameter is penetrated by a horizontal square prism, base 40 mm side, the axis of which is parallel to the V.P. and 10 mm away from axis of the cylinder. A face of the prism makes an angle of 30° with the H.P. Draw the projections, showing curves of intersection.
- b) Draw a single line developed orthographic view of piping system shown in Figure No. 2

Fig. No. 2

- c) Show by means of neat dimensional sketches the shapes of following rivets:
- (i) Snap head
 - (ii) Conical head
 - (iii) Rounded counter sunk head
 - (iv) Pan head

5. Attempt any TWO of the following:

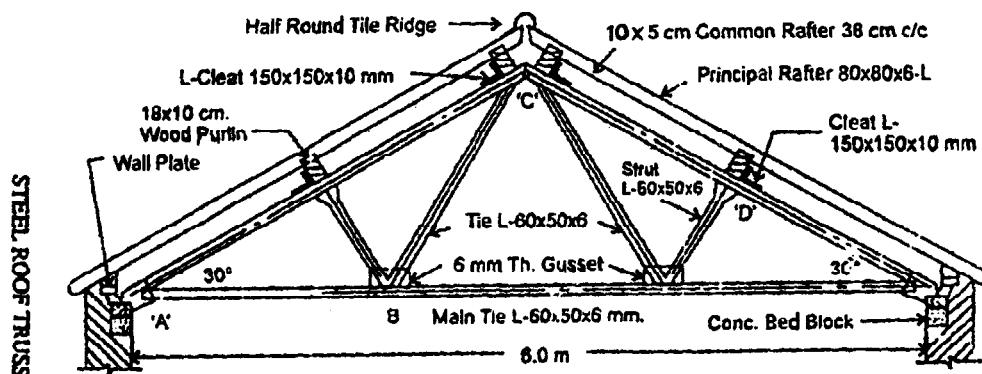
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- a) Draw saddle support and roller support used for pipes.
- b) Draw sketches of:
 - (i) Fink truss
 - (ii) Howe truss
- c) Draw diagram of supports in erection:
 - (i) Bracket support
 - (ii) Column support

6. Attempt any ONE of the following:

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- a) Prepare the erection drawing in two views [FV and SV] for a horizontal tank 2 m diameter and 8 m long, which is elevated at a height of 8 m upto centre of tank. Assume suitable cross sections for supporting members. Show detailing of welded joints.
- b) Figure No. 3 shows roof truss for 6 m span. Draw detail connection of joint at A, B, C and D.

**Fig. No. 3**

Dimensions are in mm where not given

Note:

- 1) All rivets are 15 mm diameter
- 2) All gussets are 6 mm thick.
- 3) All members of truss are 6 mm thick.