11819

4 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Figures to the right indicate full marks.

Marks

1. Attempt any FIVE of the following : **5 × 4 = 20**

(a) Write the nature of intersection in the following cases, show with sketches.

(i) prism to cylinder

(ii) prism to prism

(b) Draw the orthographic views of globe valve.

(c) Show by means of neat dimensional sketches, the shapes of following rivets :

(i) snap head

(ii) conical head

(d) Draw IST section H = 150, t_w = 10, t_f = 8, b = 140.

(e) Draw hunger type pipe support.

(f) Draw single and double line symbols for :

(i) reducing socket

(ii) cross

(iii) check valve

(iv) plug

(g) Draw following conventional symbol for rivetted joints :

(i) Rivet fitted in the workshop without countersink.

(ii) Rivet with counter sunk on one side, fitted on site and hole drilled on site.

2. Attempt any TWO of the following : **2 × 8 = 16**

(a) A vertical square prism, base 50 mm side has its faces equally inclined to V.P. It is completely penetrated by another square prism base 30 mm side, the axis of which is parallel to both the planes and 6 mm away from the axis of vertical prism. The faces of horizontal prism are also equally indined to V.P. Draw the projections of the solid showing lines of intersections. Assume suitable length of axis.

(b) Figure-1 shows orthographic layouts of piping system. Draw the single line isometric view.

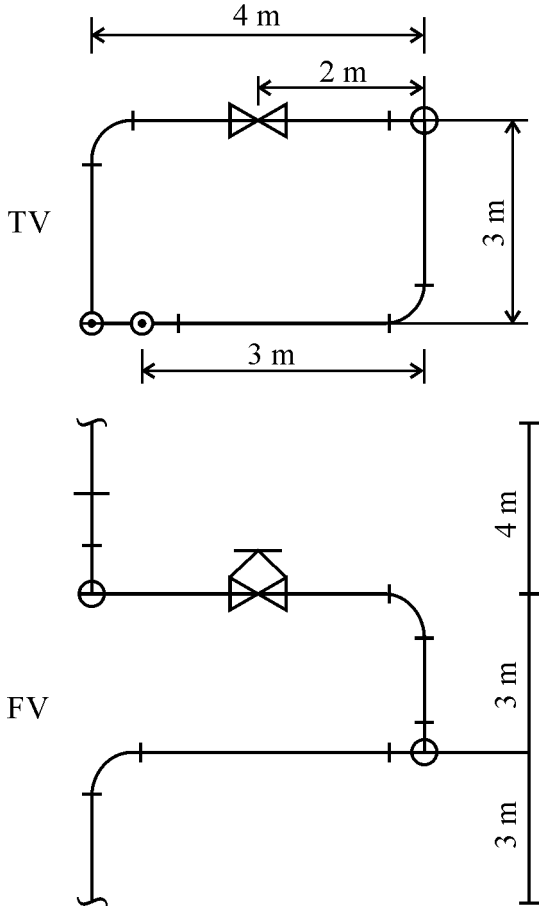


Fig. 1

(c) Draw the fink truss made by angle section having span 18 m and height 5 m. Represent rivetted joints and welded joints symbolically.

3. Attempt any TWO : **2 × 8 = 16**

(a) A letter 'E' is to be prepared of 10 mm cross section. The height and width of letter is 70 and 50. This letter is to be attached on a plate of 8 mm thickness. Prepare welding drawing as per BIS.

(b) Show by neat proportionate sketches when two unequal I – Section ISMB 500 and ISLB – 300 is connected to make long single column.

(c) Horizontal vessel 2 m diameter and 9 m length is erected at a height of 6 m from the ground level. Prepare erection drawing in two views. Assume suitable cross sections for supporting members.

4. Attempt any TWO : **2 × 8 = 16**

(a) 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.

(b) Draw diagram of supports in erection.

(i) Bracket support

(ii) Column support

(c) Redraw the given views (by neat proportionate free hand) given in fig. 2. Marked as 1, 2, 3 & 4 are to be welded as mentioned below. Use proper welding symbols.

(i) Piece 1 is welded to piece 2 by single J butt.

(ii) Piece 2 is welded to piece 3 by all round fillet weld are welding.

(iii) Piece 1 is welded to piece 4 by square butt weld finished flush on top.

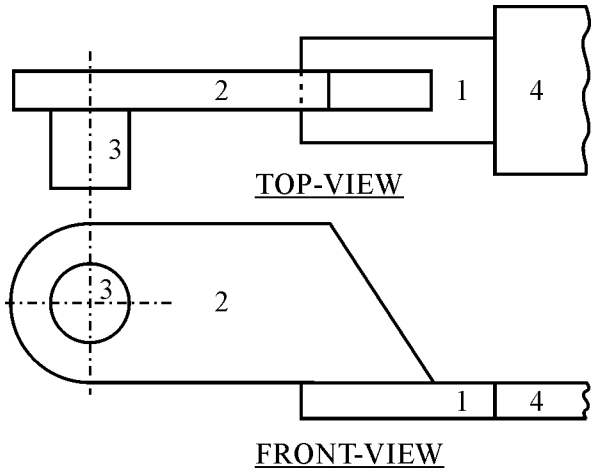


Fig. 2

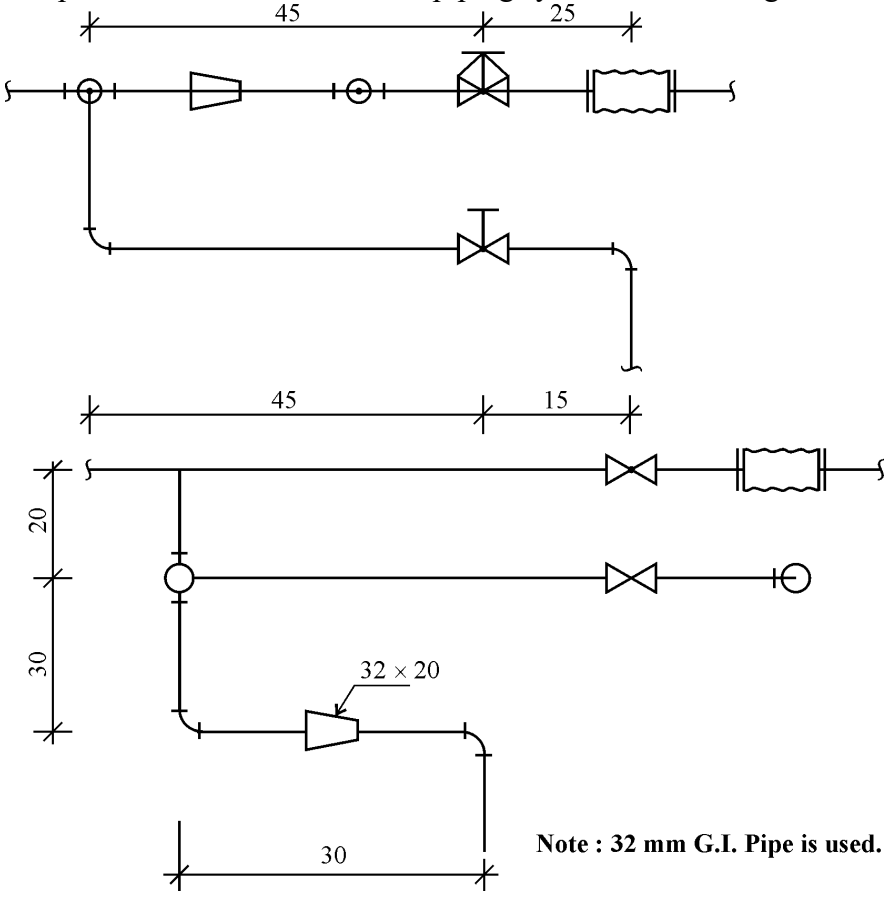
5. Attempt any TWO : **2 × 16 = 32**

(a) (i) A vertical cylinder, base 70 mm dia. is penetrated by a horizontal cylinder has 56 mm diameter. The axis of the penetrating cylinder is parallel to VP & 12 mm infront of the axis of vertical cylinder. Draw the projections showing curves of penetration.

(ii) A square prism with a base side of 40 mm & a height of 100 mm is kept on H.P. on its base with a side of base inclined at 30° to V.P. It is completely penetrated by a cylinder having a 40 mm diameter and 100 mm length whose axis is parallel to both reference planes and bisects the axis of prism. Draw projections showing curves of intersections.

(b) (i) Draw a single line developed view of the piping system shown in fig. 3.

(ii) Prepare Bill of Materials for the piping system shown in fig. 3.



Note : 32 mm G.I. Pipe is used.

Fig. 3

(c) (i) A beam 15 MB 200 is to be connected to a column of 15 MB 300, at the flunge. Show the joints in two view with free hand proportionate sketch.

(ii) Prepare erection drawing of beam to beam connection. Use suitable dimensions.
