11718

4 Hours / 100 Marks   Seat No.

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

(2)   Attempt all questions including Question No. 1 which is compulsory.

(3)   Illustrate your answers with neat sketches wherever necessary.

(4)   Figures to the right indicate full marks.

(5)   Assume suitable data, if necessary.

(6)   Use of Non-programmable Electronic Pocket Calculator is permissible.

(7)   Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **(A)   Attempt any TWO of the following :**   **2 × 6 = 12**

(a)   Draw the symbols of

(i)   Check valve

(ii)   Gate valve

(b)   Draw the conventional representation of

(i)   Seam weld

(ii)   Square butt weld

(iii) Spot weld

(c)   Draw the conventional representation of

(i)   Single rivetted butt joint (double strapped)

(ii)   Double rivetted lap joint

**(B)   Attempt any TWO of the following :**   **2 × 4 = 8**

(a)   Draw hanger type pipe support.

(b)   Draw the symbols of flat head and conical head riveted joints

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

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

   (a) A vertical square prism base 50 mm side and height 90 mm has a face inclined at 30° to VP. It is completely penetrated by another square prism base 30 mm side and axis 100 mm long, faces of which are equally inclined to VP and bisect each other at right angle. Draw the projection showing line of intersection.

   (b) Show by neat proportional sketches when a column ISLB 200 is connected to similar column.

   (c) Draw a plate grinder of I-section made out of 15 mm plate, show welding symbols. Assume suitable dimensions of web and flange. Provide upper cover and bottom cover of 10 mm thick plate.

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

   (a) Show by neat proportional sketches when two unequal I section ISMB 500 and ISMB 300 is connected to make long single column.

   (b) Convert the single line piping drawing into double line piping drawing as shown in figure 1.
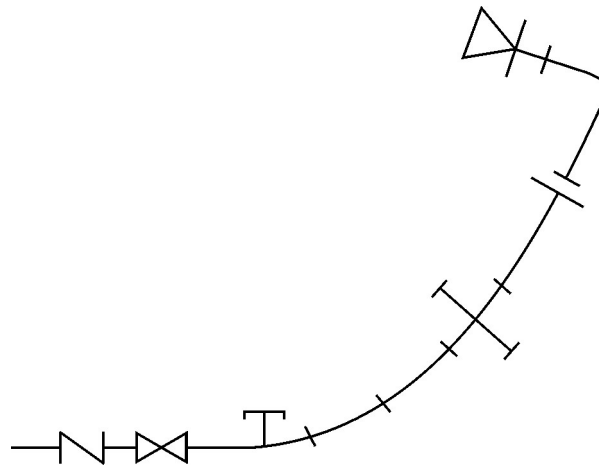

Fig. – 1

   (c) A vertical cylinder of 75 mm diameter is penetrated by another cylinder of the same size. The axis of the penetrating cylinder is parallel to both HP and VP and is 9 mm away from the axis of the vertical cylinder. Draw the projection showing curve of intersection.

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

(a) A vertical vessel 7 m height and 4 m diameter is erected at a height of 10.5 m from the ground. Prepare erection drawing into two views. Assume any suitable cross section for structure.

(b) Draw support diagram of erection

   (i) Bracket support

   (ii) Column support

(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 the HP and VP and intersect the axis of the cone at a point 28 mm above the base. Draw the projections of the solids showing curve of intersection.

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

(a) A welded joint symbol is shown as per BIS. Draw dimensional cross section view of the joint
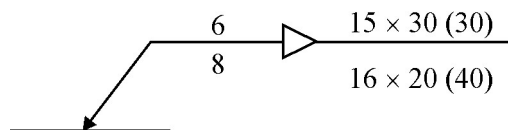
(b) Draw a Patt truss made by angle section having span 18 m and height 5 m represent rivetted and welded joint symbolically.

(c) A connecting rod 50 mm diameter has a rectangular block 65 mm wide and 25 mm thick forged at it's end. The rod joints the block with the turned radius of 25 mm. Draw the projections of the rod showing curve of intersection.

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

(a) Draw roller support and saddle support used in pipe.

(b) Prepare the erection drawing in 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 section for supporting members. Show detailed welding joints.

(c) Figure shows roof truss for 10 m span. Draw details of connections at C, D, A, E.

Elevation