CBSE Class 12 Engineering Graphics
Outside Delhi Compartment 2017 Set - 4

General Instructions :

- Attempt all the questions.
- Use both sides of the drawing sheet, if necessary.
- All dimensions are in millimetres.
- Missing and mismatching dimensions, if any, may be suitably assumed.
- Follow the SP : 46-2003 revised codes (with first angle method of projection).
- In no view of question 2, hidden edges or lines are required.
- In question 4, hidden edges or lines are to be shown in views without section.
- Give your answers according to questions.

1. Answer the following Multiple-Choice Questions. Print the correct choice on your drawing sheet. (5)
   i. What is the included angle of a hexagon?
      a. 30°
      b. 60°
      c. 45°
      d. 15°
   ii. Which joint is used to join two square shafts?
      a. Flange coupling
      b. Knuckle joint
      c. Cotter joint
      d. Turnbuckle
   iii. What is the value of margin 'm' in a single riveted lap joint?
      a. m = d
      b. m = 1.5 d
      c. m = 3 d
      d. m = t
   iv. In bushed bearing the bush is generally made up with?
      a. Cast Iron

b. Mild Steel
c. Brass
d. Copper

v. Which thread is usually used for power transmission among these?
a. Square thread
b. Knuckle thread
c. Metric thread
d. BSW thread

2. i. Construct an isometric scale of 50 mm length.(4)

ii. A Frustum of a hexagonal pyramid (shorter base side 30 mm, longer base side 60 mm and height 80 mm) is resting on its longer base side on HP. Its two base sides are perpendicular to VP. Draw its isometric projection and give all dimensions. Indicate the direction of viewing.(7)

iii. A right circular cone (diameter 50 mm and height 70 mm) resting centrally and vertically on the top of a cube of side 80 mm. The common axis are perpendicular to HP. Draw the isometric projection of the combination of solids. Show the common axis and indicate the direction of viewing. Give all dimensions.(13)

3. i. Draw to scale 1:1 the standard profile of a Knuckle Thread External. Take enlarged pitch 40 mm. Give standard dimensions. (8)

OR

Draw to scale 1:1 the front view and top view of a plain washer for a bolt of 20 mm diameter. Keep circular face of the washer parallel to V.P. Give standard dimensions

ii. Sketch free hand the front view and side view of a Plain stud with diameter 20 mm. Keep the axis parallel to V.P. Give standard dimensions.(5)

OR

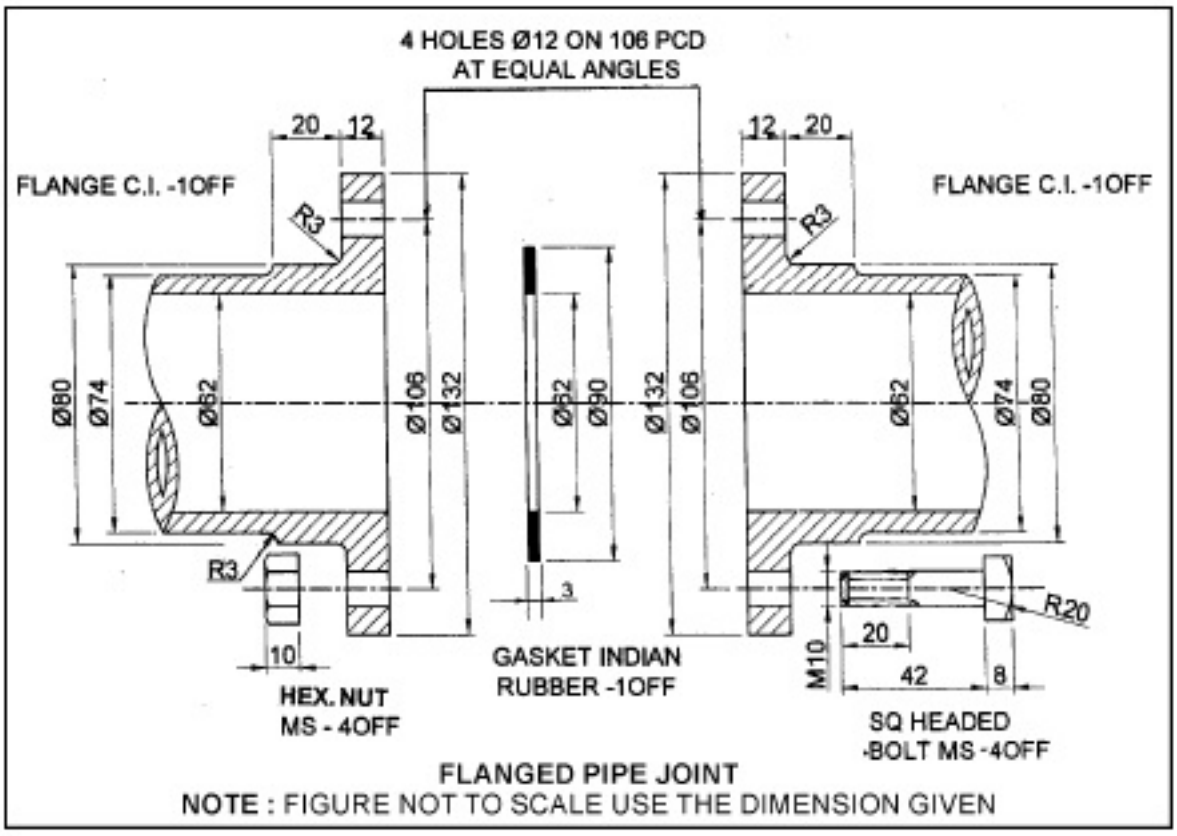
Sketch free hand the front view and top view of a Snap head rivet of diameter 30 mm. Give standard dimensions.

4. Figure 1 shows the details of the parts of a Flanged pipe joint. Assemble these parts correctly and then draw to scale 1 : 1 its following view.

i. Front view, upper half in section.(14)

ii. Side view looking from right.(8)

Print the title and the scale used. Draw the projection symbol. Give 6 important dimensions. (6)

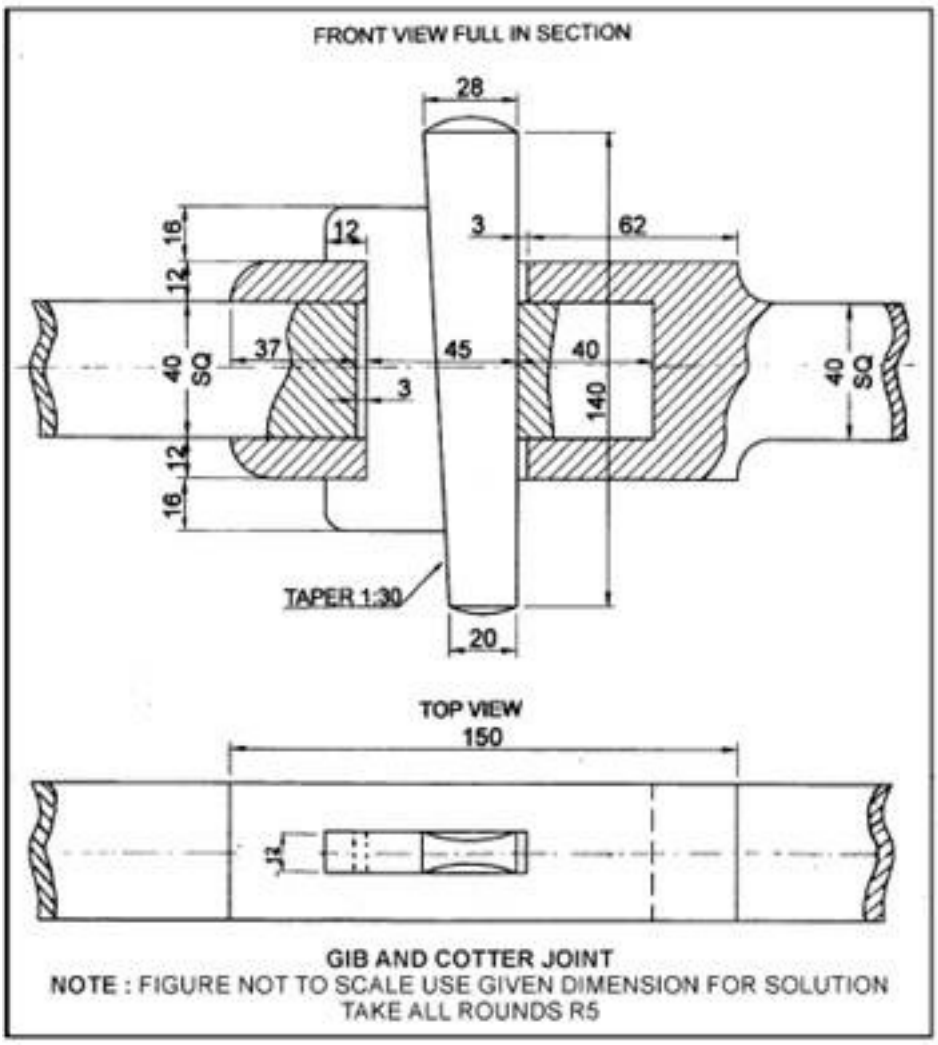


OR

Figure 2 shows the assembly of a Gib and Cotter Joint. Disassemble the parts correctly and draw its following views of the following parts to scale 1 : 1. Keep the same position of both Fork and Gib with respect to H.P and V.P.

1. Fork :
   a. Front view lower half in section(8)
   b. Top view(7)
2. Gib :
   a. Front view(4)
   b. Top view(3)

   Print the title of both and scale used. Draw the projection symbol. Give 6 important dimensions.(6)



GIB AND COTTER JOINT

NOTE : FIGURE NOT TO SCALE USE GIVEN DIMENSION FOR SOLUTION
TAKE ALL ROUNDS R5