	INDIAN SCHOOL AL WADI AL KABIR	
Class: XII	**Department: SCIENCE 2026– 27** **SUBJECT: ENGINEERING GRAPHICS**	**Date: 31/10/2026**
Worksheet No: 5 **WITH ANSWERS**	**UNIT 5: TIE ROD & PIPE JOINTS**	**Note:** **A4 FILE FORMAT**
NAME OF THE STUDENT	**CLASS & SEC: XII B**	**ROLL NO.**

MULTIPLE CHOICE QUESTIONS

1. The threads provided on the two ends of a turnbuckle are generally:
   (a) Both right-handed
   (b) Both left-handed
   (c) One right-handed and one left-handed
   (d) Thread less

2. Why are opposite threads used in a turnbuckle?
   (a) To prevent the rods from rotating
   (b) To allow simultaneous movement of both rods when the body is rotated
   (c) To increase the diameter of the rods
   (d) To prevent corrosion

3. A tie rod is subjected primarily to which type of load during operation?
   (a) Tensile load
   (b) Torsional load
   (c) Bending load
   (d) Shear load

4. Which of the following is commonly used to connect two pipes in a flanged pipe joint?
   (a) Cotter and gib
   (b) Bolts and nuts
   (c) Keys and keyways
   (d) Rivets only

5. The primary purpose of a flange in a pipe joint is to:
   (a) Increase the flow velocity
   (b) Provide a means for connecting pipes securely

(c) Reduce the pipe length
(d) Change the colour of the pipe

6. A pipeline needs a joint that can withstand internal fluid pressure and also permit convenient dismantling for maintenance. Which combination is most suitable?
(a) Flanges, bolts, nuts and gasket
(b) Rivets and washers
(c) Cotter and gib
(d) Welding and soldering only

7. A tie rod is used in engineering assemblies mainly to:
(a) Transmit torque
(b) Provide tensile strength and hold parts together
(c) Reduce friction between two surfaces
(d) Act as a bearing support

8. When connecting a tie rod with nuts at both ends, the purpose of the nut is to:
(a) Prevent the bending of the rod
(b) Prevent loosening due to vibrations
(c) Increase compressive strength
(d) Reduce wear in joints

9. In a sleeve joint for tie rods, the sleeve is generally provided with:
(a) One internal thread only
(b) External and internal threads
(c) Two internal threads of opposite hand
(d) No threads, only clearance holes

10. Which joint is used for joining cables, ropes, and wires of electric poles?

(a) Knuckle joint
(b) Flange pipe joint
(c) Tie rod joint
(d) Strap joint

11. A rubber ring as a gasket in a flange pipe joint is provided between the two flanges to ---------
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(a) Fill the gap between the two flanges
(b) Align the two flanges
(c) Make a leak-proof joint
(d) support nuts and bolts

12. How many rods are needed for the assembly of a turnbuckle?

(a) 1
(b) 2
(c) 4
(d) 3

13. The hollow cylindrical pipe on the pipe joint is called a ----------.
(a)Flange
(b)Gasket
(c)bolt
(d)nut

14. Which one is an adjustable joint?
(a) cotter joint
(b) Turnbuckle
(c) Spigot joint
(d) None of the above

15. The body of a turnbuckle has a slot at the central portion----------.
(a) to reduce friction
(b) to increase the friction
(c) to aid in removing the defect in manufacturing
(d) to aid in the tightening and loosening of rods by the Tommy bar

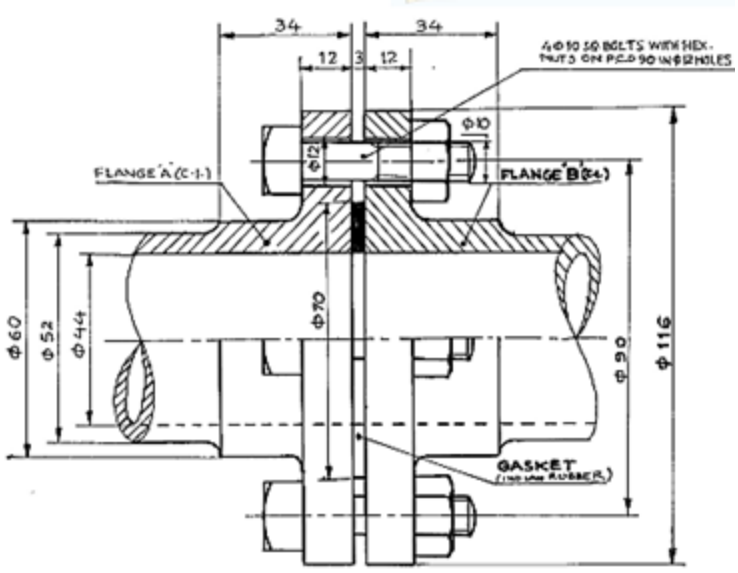
DESCRIPTIVE TYPE QUESTIONS

1. The figure shows the assembly of the parts of a flanged pipe joint. Disassemble the parts and draw the following views of the components to scale 1:1, keeping them in the same position with respect to HP and VP.

(i) Flange B
   a) Front view, upper half in section
   b) Right-hand side view

(ii) Gasket
   a) Full sectional front view
   b) Left-hand side view

   c) Print the titles of both and the scale used. Draw the projection symbol and give 6 important dimensions.



FRONT VIEW UPPER HALF IN SECTION

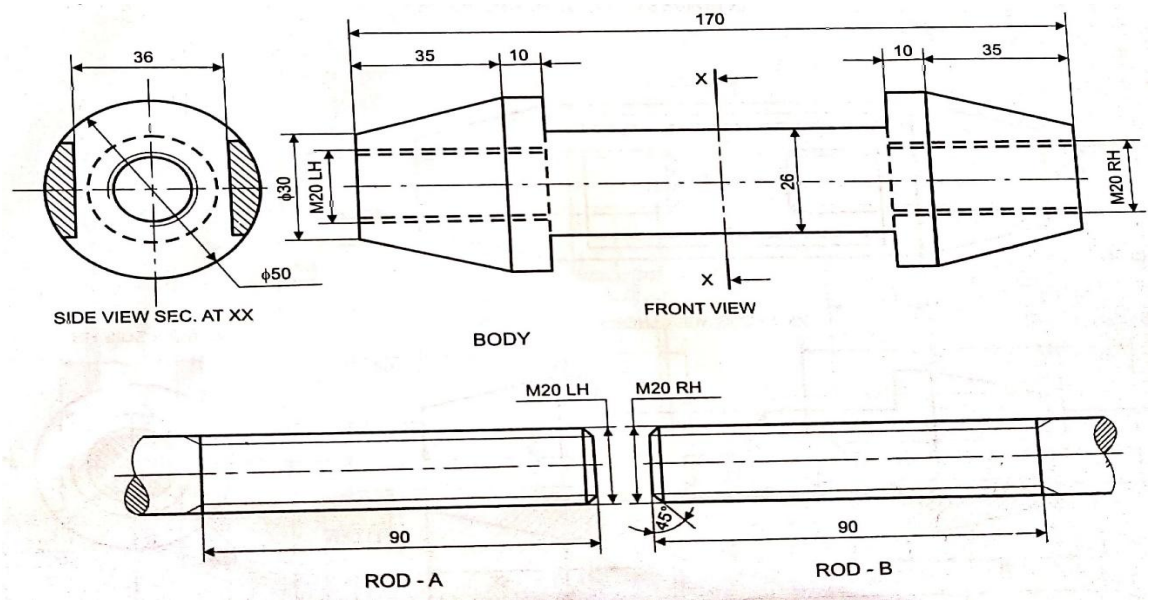
चित्र 2/FIG. 2 FLANGE PIPE JOINT

NOTE: TAKE ALL FILLETS R4

2. The figure shows the details of the parts of a Turnbuckle. Assemble these parts correctly and then draw the following views to a scale of 1:1. Insert the 70 mm threaded portion of each rod inside the body of the turnbuckle.

a) Front view, upper half in section
b) Side view as viewed from the right
c) Top view

Write the heading and scale used. Draw the projection symbol. Give 6 important dimensions,

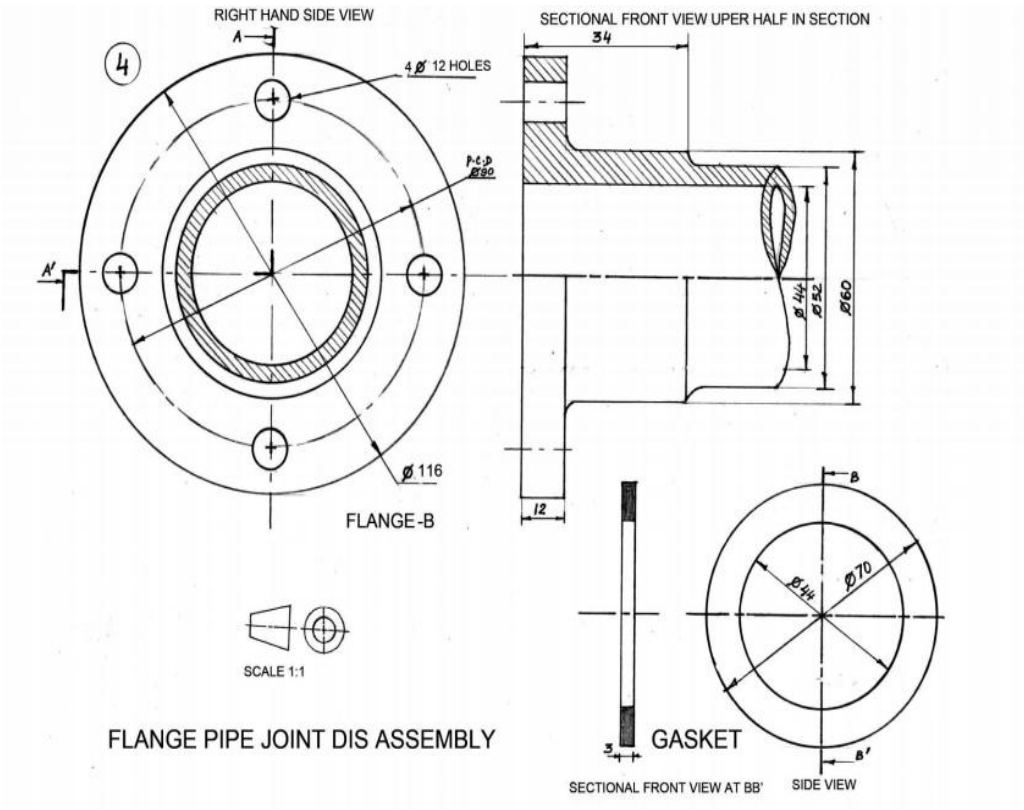


ANSWERS – MULTIPLE CHOICE QUESTIONS

1. (c) One right-handed and one left-handed
2. (b) To allow simultaneous movement of both rods when the body is rotated
3. (a) Tensile load
4. (b) Bolts and nuts
5. (b) Provide a means for connecting pipes securely
6. (a) Flanges, bolts, nuts and gasket
7. (b) Provide tensile strength and hold parts together
8. (b) Prevent loosening due to vibrations
9. (c) Two internal threads of opposite hand
10. (c) Tie Rod joint
11. (c) Make a leak-proof joint
12. (b) 2
13. (a) Flange
14. (b) Turnbuckle
15. (d) to aid in the tightening and loosening of rods by the tommy bar

SOLUTIONS FOR DRAWINGS

1.



2.

Solution:

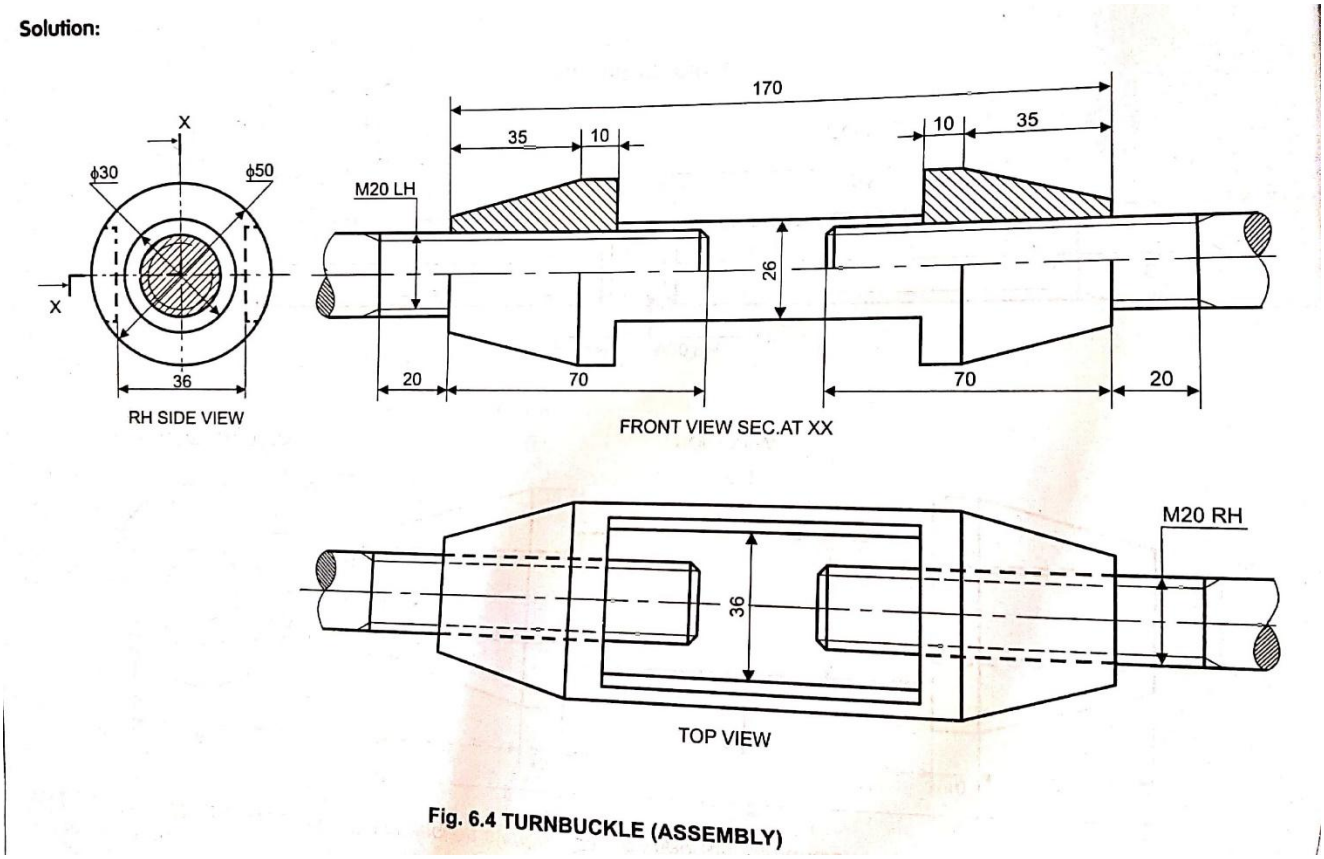


Fig. 6.4 TURNBUCKLE (ASSEMBLY)

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