

	INDIAN SCHOOL AL WADI AL KABIR		
Class: XII	Department: SCIENCE 2026– 27 SUBJECT: ENGINEERING GRAPHICS	Date: 24/08/2026	
Worksheet No: 4 WITH ANSWERS	UNIT 4: ROD JOINTS	Note: A4 FILE FORMAT	
NAME OF THE STUDENT	CLASS & SEC: XII B	ROLL NO.	

MULTIPLE CHOICE QUESTIONS

1. The primary purpose of a cotter in a sleeve and cotter joint is to:
 - a) Allow rotational motion between rods
 - b) Connect two rods subjected to axial tensile or compressive forces
 - c) Reduce friction between rods
 - d) Increase the diameter of the rods
2. In a sleeve and cotter joint, the sleeve is mainly provided to:
 - a) Connect and align the two rods
 - b) Permit free rotation of the rods
 - c) Act as a bearing
 - d) Replace the cotter
3. Why is a cotter generally made with a slight taper?
 - a) To make it lighter
 - b) To facilitate tightening and removal of the joint
 - c) To increase the diameter of the sleeve
 - d) To allow continuous rotation
4. A student is comparing the two rod joints. Which statement correctly distinguishes a Gib and cotter joint from a sleeve and cotter joint?
 - a) Gib and cotter joint uses a gib along with the cotter
 - b) Gib and cotter joint does not use a cotter

- c) Sleeve and cotter joint always permits rotation
 - d) Both joints are identical in construction
5. A machine component requires two coaxial rods to be joined permanently for transmitting an axial load, but the joint should also be disassembled for maintenance. Which joint is most appropriate?
- a) Sleeve and cotter joint
 - b) Knuckle joint
 - c) Lap joint
 - d) Riveted joint
6. Typical applications of the ----- are fastening of piston rods and crossheads in steam engines, yokes in rods, tool fixtures, and for services of similar kinds, etc.
- a) bearings
 - b) turnbuckle
 - c) pipe joint
 - d) cotter joint
7. The Gib increases the tearing area of the ----- and prevents slackening of the joint besides holding the jaws of the strap or fork from opening wide when the cotter is inserted.
- a) Fork end
 - b) Eye end
 - c) Cotter
 - d) Strap
8. Strap is a part of which of the following machine joint?
- a) Flange pipe Joint
 - b) Gib and cotter joint
 - c) Tie rod joint
 - d) Sleeve and cotter joint
9. Which statements are correct for a 'Cotter'?
- (i) It is tapered on both sides.
 - (ii) Two cotters are used in a Gib and Cotter Joint.
 - (iii) The taper helps in easy insertion & withdrawal.

(iv) It has uniform thickness.

- a) (i) & (iii)
- b) (iii) & (iv)
- c) (ii) & (iv)
- d) (ii) & (iii)

10. Which joint is used for rods of square cross section?

- a) Knuckle joint
- b) bushed bearing
- c) socket and spigot joint
- d) gib and cotter joint

11. Gib is always provided in conjunction with :

- a) key
- b) cotter
- c) bolt
- d) Rivet

12. How much taper is generally used in the width of a cotter

- a) 1:3
- b) 1:10
- c) 1:30
- d) 1:50

13. Gib is provided towards which end of a fork in a cotter joint

- a) broken end

- b) upper end
- c) lower end
- d) open end

14. A cotter joint is used to connect two :

- (a) coaxial rods
- (b) perpendicular rods
- (c) parallel rods
- (d) rods in any position

15. Match LIST I with LIST II. LIST I LIST II

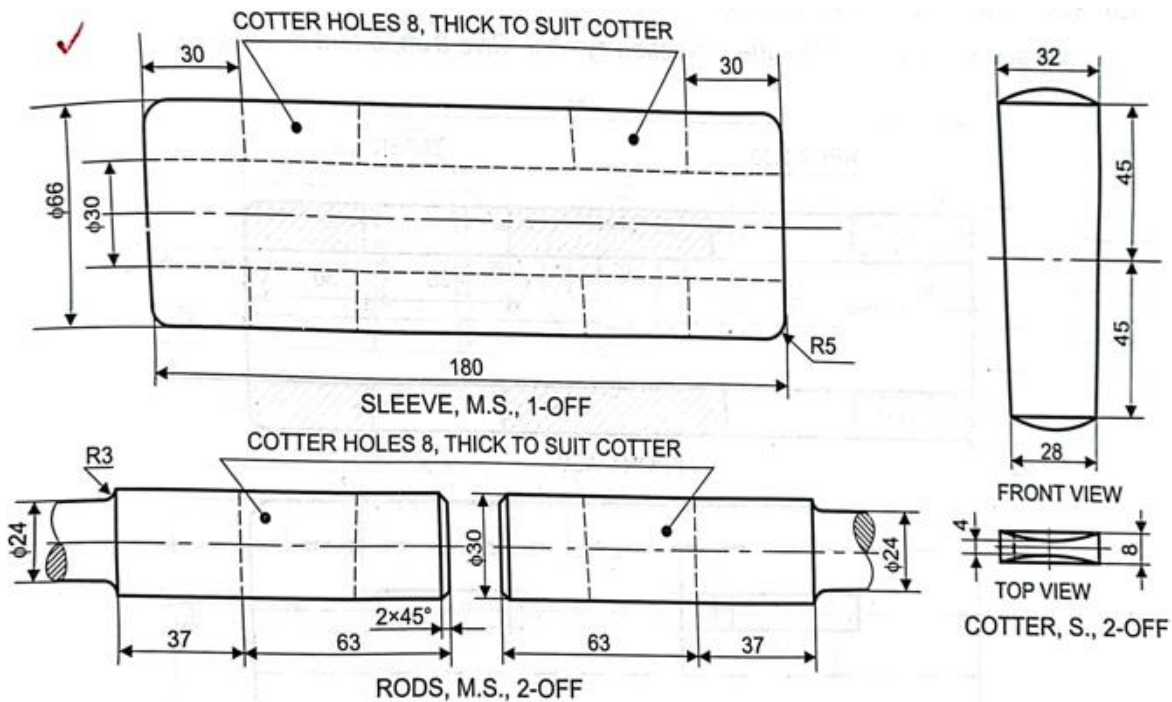
LIST I	LIST II
1. GIB & COTTER JOINT	(i) Used for joining two circular rods
2. SLEEVE & COTTER JOINT	(ii) used for supporting horizontal shaft
3. OPEN BEARING	(iii) used for joining two pipes.
4. FLANGE PIPE JOINT	(iv) used for joining two square rods.

- (a) 1-iv, 2-i, 3-ii, 4-iii
- (b) 1-i, 2-ii, 3-iii, 4-iv
- (c) 1-iv, 2-iii, 3-ii, 4-i
- (d) 1-i, 2-iii, 3-iv, 4-ii

Descriptive Questions

1. The figure shows the details of the parts of a Sleeve and Cotter joint. Assemble these parts correctly and then draw the following views to scale 1:1.

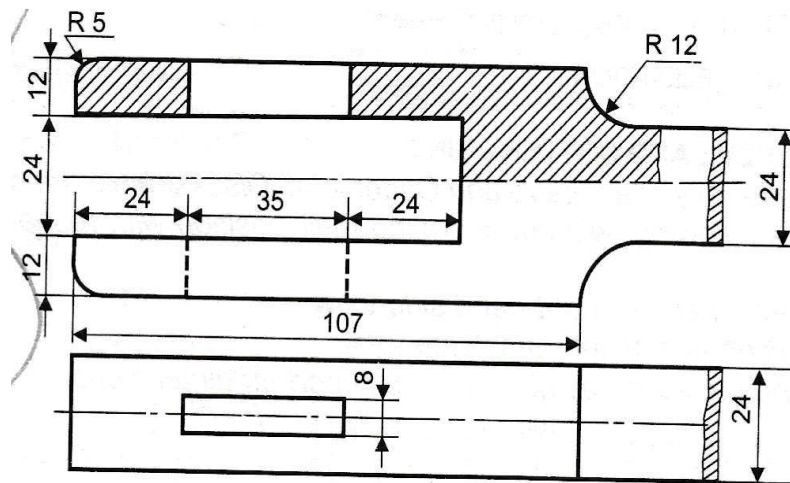
- (a) Front view upper half in section
- (b) Left hand side view
- (c) Print title, scale used and give all dimensions.



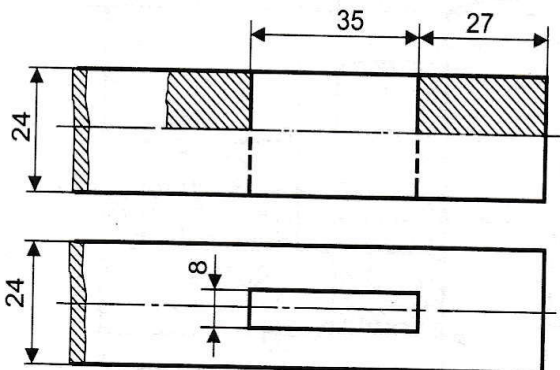
2. The figure below shows the details of a Gib and cotter joint for square rods. Assemble the parts correctly and draw the following views to scale 1:1.

- (a) Top half sectional front view
- (b) Top view
- (c) Left hand side view

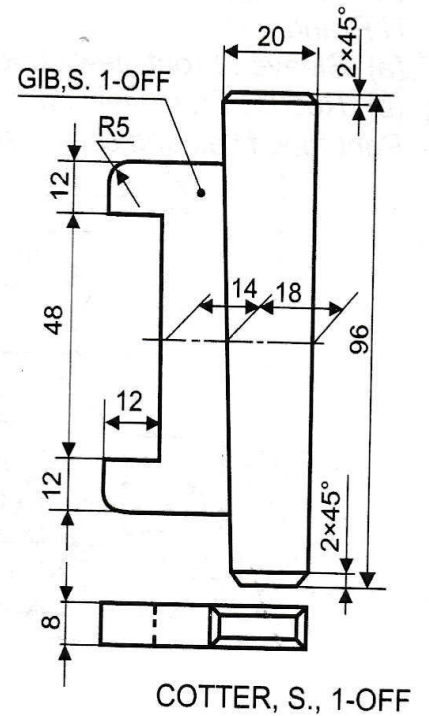
Write heading and scale used. Give 8 leading dimensions, also draw projection symbol.



STRAP, F.S., 1-OFF



ROD, F.S., 1-OFF



COTTER, S., 1-OFF

MULTIPLE CHOICE QUESTIONS

ANSWERS

- 1.b) Connect two rods subjected to axial tensile or compressive forces
2. a) Connect and align the two rods
3. b) To facilitate tightening and removal of the joint
4. a) Gib and cotter joint uses a gib along with the cotter
5. a) Sleeve and cotter joint
- 6.d) Cotter joint
7. c) Cotter
- 8.b) Gib and cotter joint
9. b) (iii) & (iv)

10.(d) Gib and cotter joint

11.(b)Cotter

12.(c)1:30

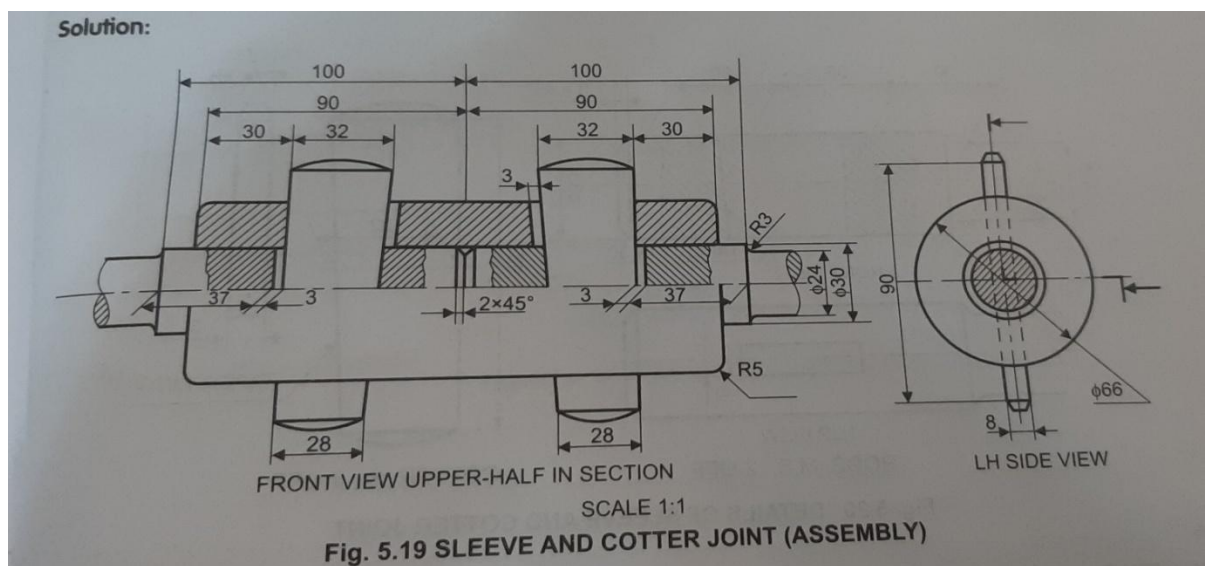
13.(d)Open end

14.(a)Co-axial rods

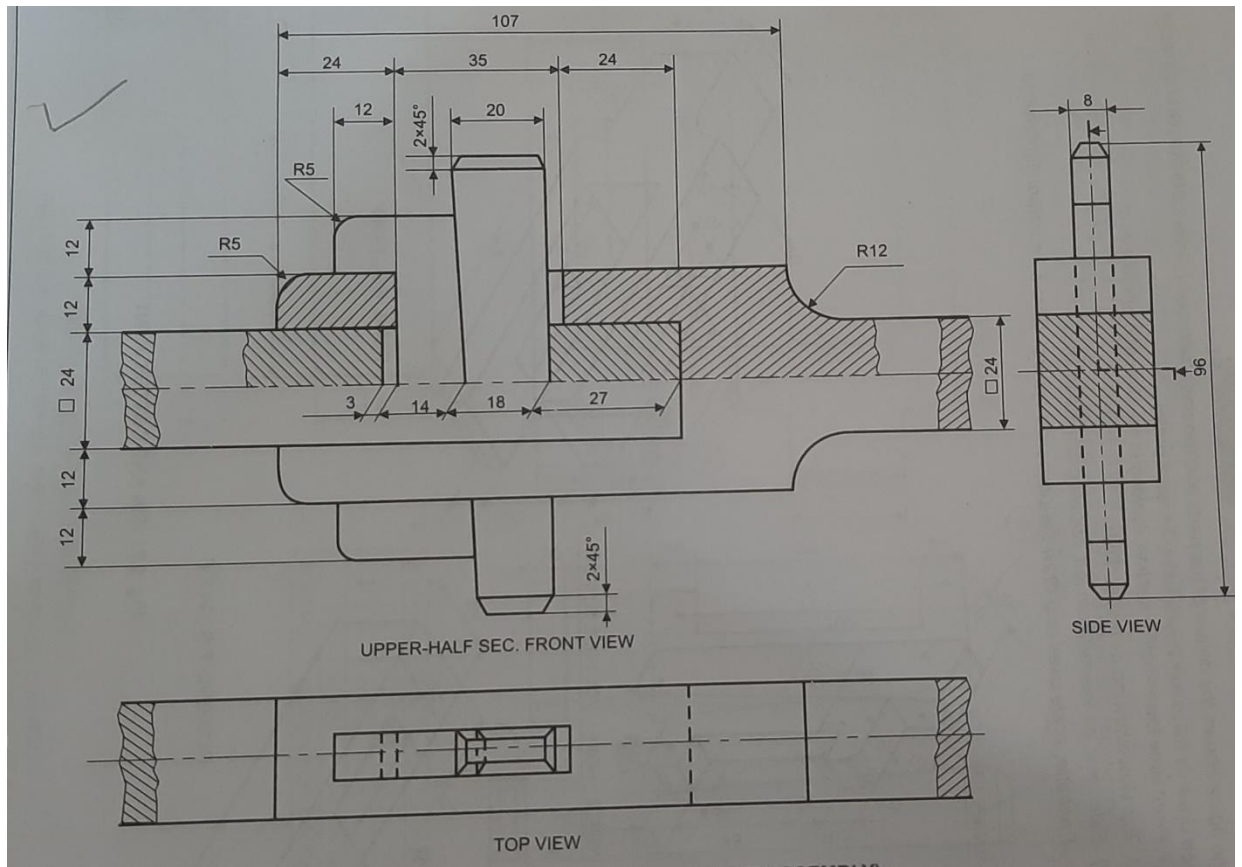
15. (a) 1-iv, 2-i, 3-ii, 4-iii

SOLUTIONS FOR DRAWINGS

1.



2. Gib and Cotter joint Assembly



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