COMMON PRE-BOARD EXAMINATION 2024-25

Subject: ENGINEERING GRAPHICS (046)

MARKING SCHEME

Date:

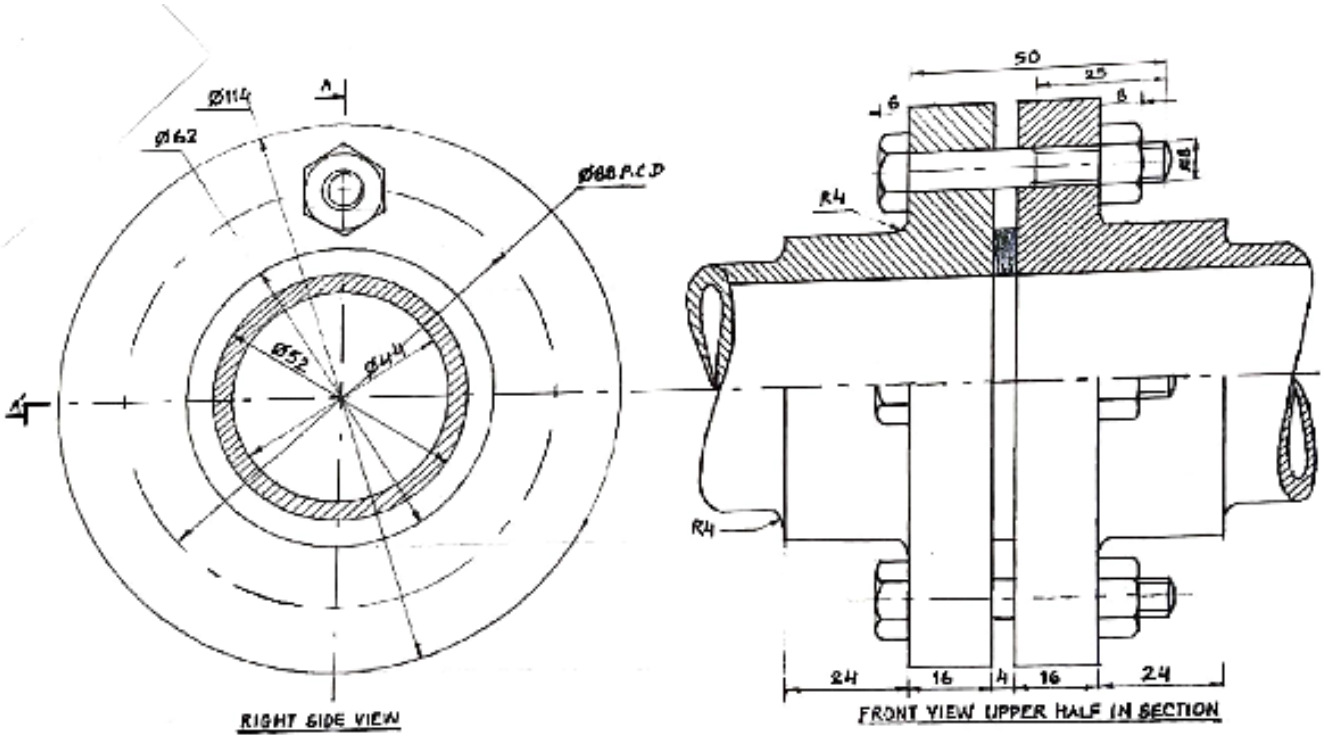
General Instructions:

1. This Question Paper has 3 Sections A - C.
2. All Questions are compulsory. However, an internal choice in Qn. NO 23 of 27 marks and in Qn. No 25 of 8 marks has been provided.

1. c 2. b 3. b 4. c 5. a 6. a 7. c 8. b 9. a 10. a 11. d 12. a
13. c 14. b 15. a 16. b 17. c 18. b 19. b 20. c 22. d

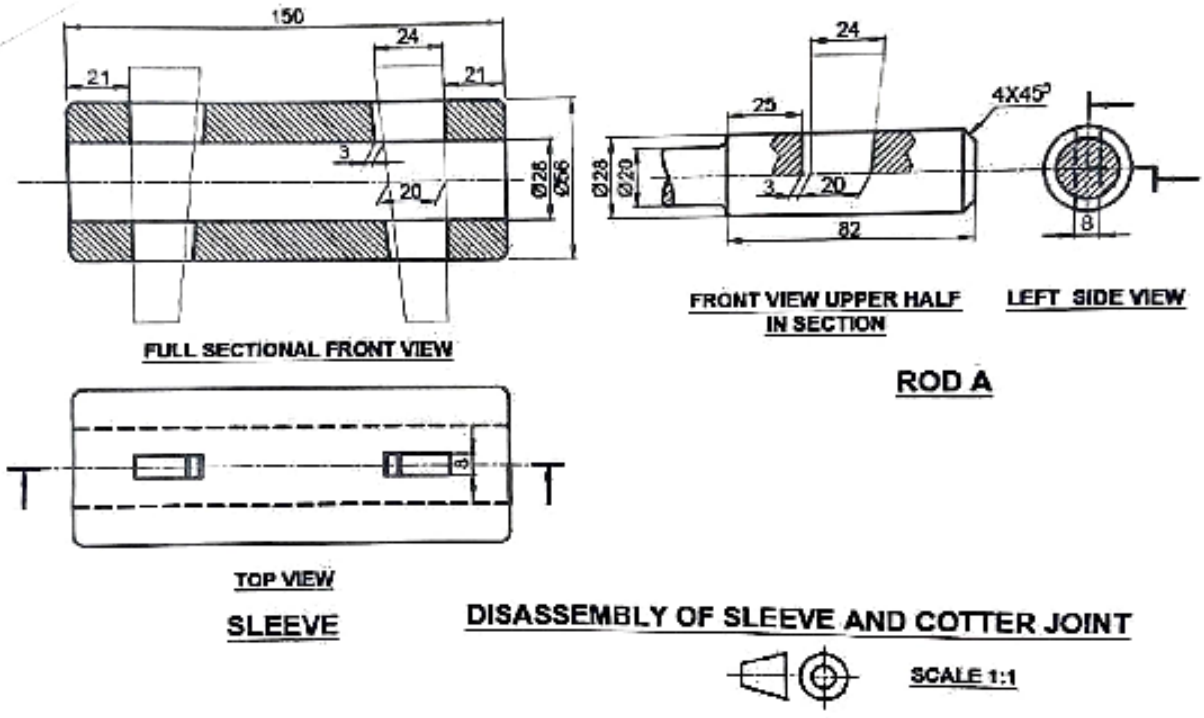
23.	**A. ASSEMBLY OF FLANGE PIPE JOINT**	**27**
	a. FRONT VIEW UPPER HALF IN SECTION	**13**
	1. Drawing the upper half correctly	
	Drawing boundary of both flange pipes in lower half portion (2), fillet (1/2) , four vertical lines (1/2) and conventional end of pipe (1/2)	3 ½
	Drawing boundary of both flange pipes in upper half portion (2), fillet (1/2) , horizontal lines of inner wall of pipes (1/2) and conventional ends of pipe (1/2)	3 ½
	Drawing the hatching lines in lower half portion of both flange pipes	2
	Drawing bolts and nuts correctly on PCD circle	3
	Drawing gasket in upper half with shading and gasket in lower half	1
	b. RIGHT SIDE VIEW	**8**
	Drawing the circles including the hidden circle and pitch circle	5
	Drawing hatching lines to indicate pipe thickness	1
	Drawing the bolt- nut	11/2
	Drawing cutting plane	1/2
	c. OTHERS	**6**
	1. six important dimensions	3
	2. Printing the title, Projection symbol, and the scale used	3

	B. SLEEVE AND COTTER JOINT (DISASSEMBLY)	
	a. SLEEVE	
	1. Full sectional front view	**8**
	Drawing the boundary of sleeve with rounds of R4(2 1/2) and lines showing holed of dia 28 (1)	3 ½
	Drawing the cotter holes with taper (2) , showing correctness of taper in cotter holes (1/2) as per question	2 ½
	Drawing the hatching lines	2
	2. Top view	**6**
	Drawing the boundary of sleeve with rounds of R4(2 1/2) and hidden lines showing holed of dia 28 (1)	3 ½
	Drawing both the cotter holes with vertical lines	2
	Drawing the cutting plane	½
	b**. ROD A**	**4**
	1. Front view upper half in section	
	Drawing the rod with chamfered end ($4*45^0$) and conventional end	2
	Drawing cotter hole with taper, in upper half	1
	Drawing hatching lines in upper half	1
	2. Left side view	
	Drawing two circles	**3**
	Drawing hatching lines in inner circle showing broken end of the rod	1 ½
	Drawing hidden lines for cotter hole	½
	Drawing cutting plane	½
	C. DETAILS	½
	Printing titles (1) scale used (1) drawing projection symbol (1) six important dimensions (3)	**6**



ASSEMBLY OF FLANGE PIPE JOINT

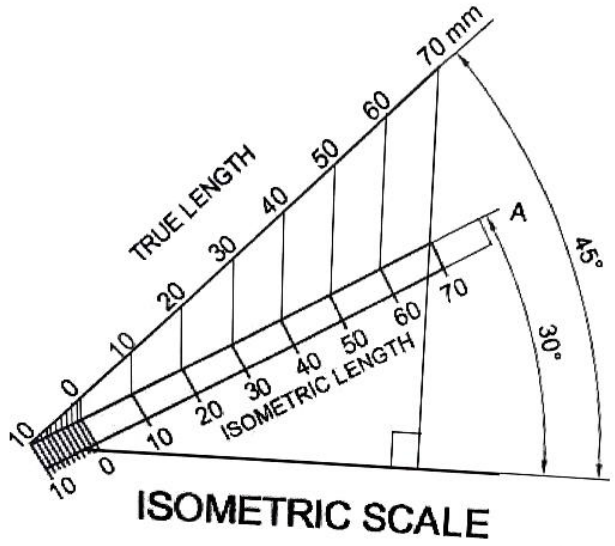
OR



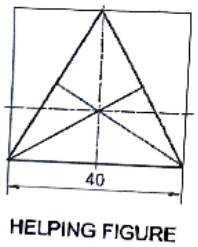
DISASSEMBLY OF SLEEVE AND COTTER JOINT

SCALE 1:1

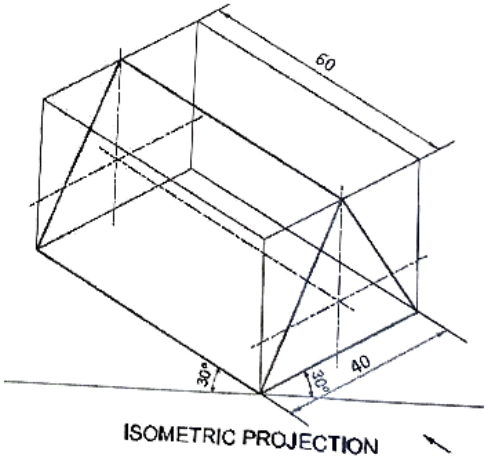
24.	1. ISOMETRIC SCALE	**4**
	a. Drawing 45 inclined line showing true length	1
	b. Projection on 30 inclined line showing isometric length with 1mm subdivisions in one part	2
	c. writing title, sub titles, and angles	1
	2. ISOMETRIC PROJECTION OF THE PRISM	**9**
	a. helping figure	1
	b. Drawing the triangles	3
	c. drawing the edges	2
	d. Dimensioning	1
	e. Indicating the axis and direction of viewing	2



ISOMETRIC SCALE



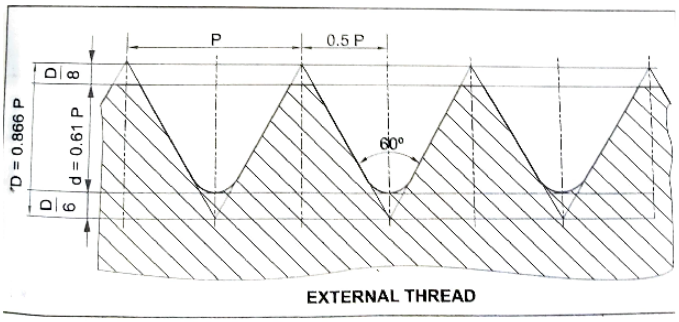
HELPING FIGURE



ISOMETRIC PROJECTION

25.	**A. METRIC SCREW THREAD PROFIE (EXTERNAL)**	**8**
	i. Horizontal distances (equal to half of pitch) , vertical distances (D = 0.866P, D/8 and D/6) marked correctly	2
	ii. Drawing of crests (1) and roots (1) of threads (minimum two) , flanks (1) drawn correctly	3
	iii Drawing hatching lines with conventional break	1
	iv standard dimensioning	2
	OR	
	B. HEXAGONAL HEADED BOLT (with axis horizontal)	8
	a. Front view	
	i. Drawing the head of the bolt	2
	ii. Drawing the threaded (1)and unthreaded (1) portion of the shank	2
	b. side view	
	i. Drawing the hexagon	1
	ii. Drawing the chamfering circle (1/2) and two circles showing the threads as per convention (1/2)	1
	c. standard dimensions	2

A

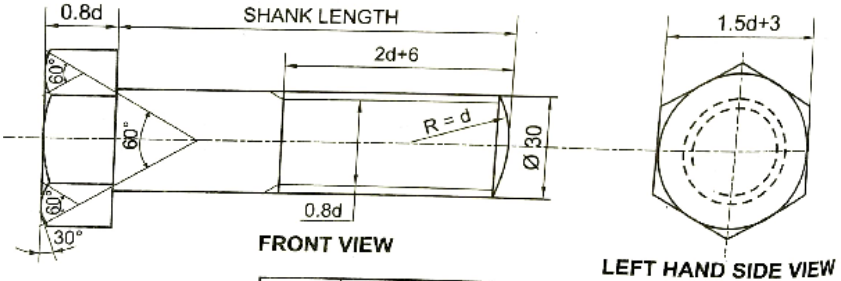


EXTERNAL THREAD

P	0.86P	0.61P	D/8	D/6
50	43	30.5	6.3	8.3

OR

B



d	0.8d	1.5d+3	2d+6
30	24	48	66

HEXAGONAL BOLT