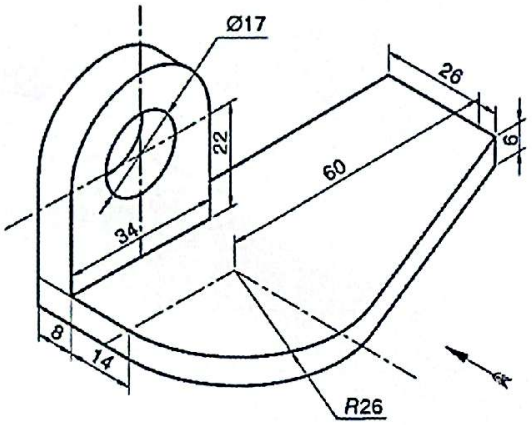
KATHMANDU UNIVERSITY
End Semester Examination
2025

Level	: B.E.		Course	: EDRG 102
Year/Semester	: I/II		FM	: 40
Time	: 2 hrs. 30 min.	Set A	PM	: 20

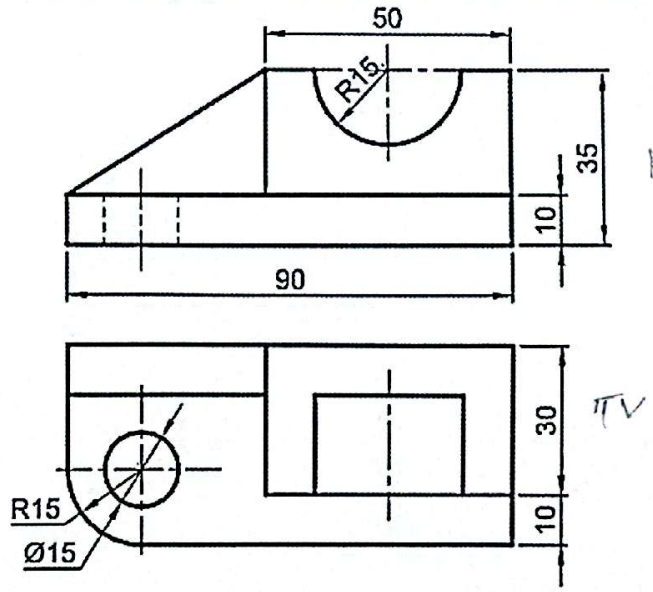
[3Q × 12 = 36 marks]

Use appropriate instruments and **one** drawing sheet. Answer *ALL* questions. Assume missing dimensions if and only if any. Flip the page to refer tables for empirical relations. 4 marks is dedicated for title block.

1. Draw to 1:1 scale the top view and sectional front view of double riveted butt joint with double cover plate with chain riveting. The thickness of the plates is 10 mm. indicate all the dimensions and empirical proportions. Show at least three rivets in each row.
2. Draw the orthographic views of the objects shown in figure and show all the dimensions. Front view is indicated by the arrow.



3. Draw the isometric view of the orthographic views and show all the dimension.



Parameters	Hexagonal Nut and Bolt	Square Nut and Bolt

Nominal Diameter	Given D	Given D
Across the Flat (A/F)	$1.5D + 3$	$1.5D + 3$
Across the Corner (A/C)	$2D$	$\sqrt{2}.(\frac{A}{F})$
Height of the Nut	$0.9D$	$0.9D$
Height of the Bolt	$0.75D$	$0.75D$
Minor Diameter (Nut)	$0.8D$	$0.8D$
Chamfer Distance	$0.1D$	$0.1D$
Bolt Length	*Given L*	*Given L*
Thread Length	L_t	L_t

Common Parameters	**Empirical Formula**			
Rivet diameter d	$6\sqrt{t}$ (t given)			
Rivet head diameter	$1.6d$			
Rivet head height	$0.7d$			
Case Specific Parameters	**Lap Joints**		**Butt Joints**	
	Chain	**Zigzag**	**Chain**	**Zigzag**
Pitch(p)	$3d$	$3d$	$3d$	$3d$
Back pitch(p_b)	2d+6	$2d$	$3d$	$3d$
Margin (m)	$1.5d$	$1.5d$	$1.5d$	$1.5d$
Single cover plate thickness(t_1)	-	-	$1.125t$	$1.125t$
Double cover plate thickness(t_2)	-	-	$0.75t$	$0.75t$
Chamfer angle	10°	10°	10°	10°