



higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

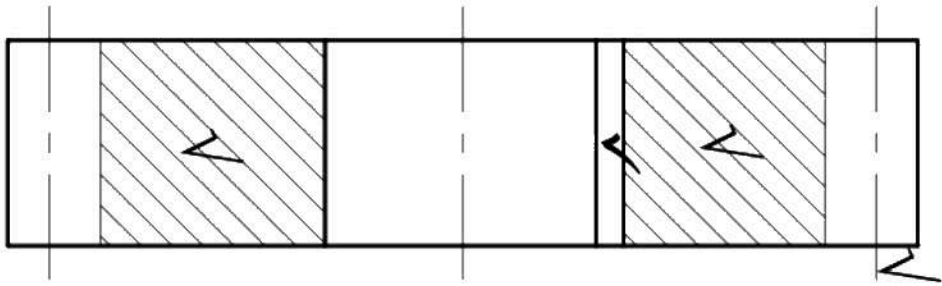
**NATIONAL CERTIFICATE:
MULTI-DISCIPLINARY DRAWING OFFICE PRACTICE**

MECHANICAL DRAUGHTING

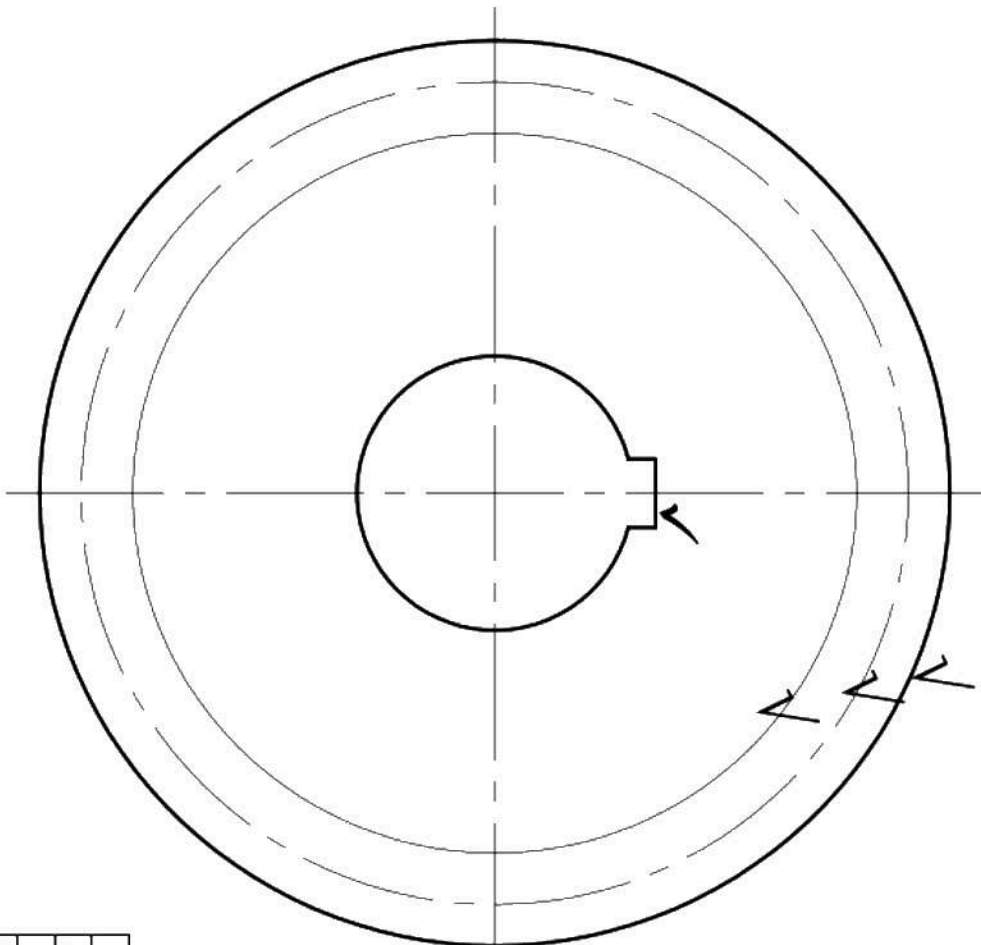
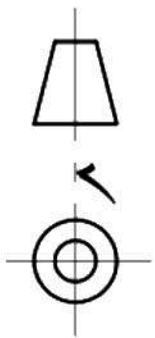
28 July 2025

This marking guideline consists of 7 pages.

QUESTION 1: SPUR GEAR



SPUR GEAR ✓
SCALE 1:1 ✓



CALCULATIONS:

$$\text{MODULE} = \frac{\text{PCD}}{\text{TEETH}}$$

$$M = \frac{120}{20} = 6 \quad \checkmark$$

ADDENDUM = MODULE
ADDENDUM = 6

$$\text{DEDENDUM} = \text{MODULE} \times 1.25$$

$$\text{DEDENDUM} = 6 \times 1.25 = 7.5 \quad \checkmark$$

$$\text{KEYWAY WIDTH} = \frac{\text{SHAFT } \phi}{4}$$

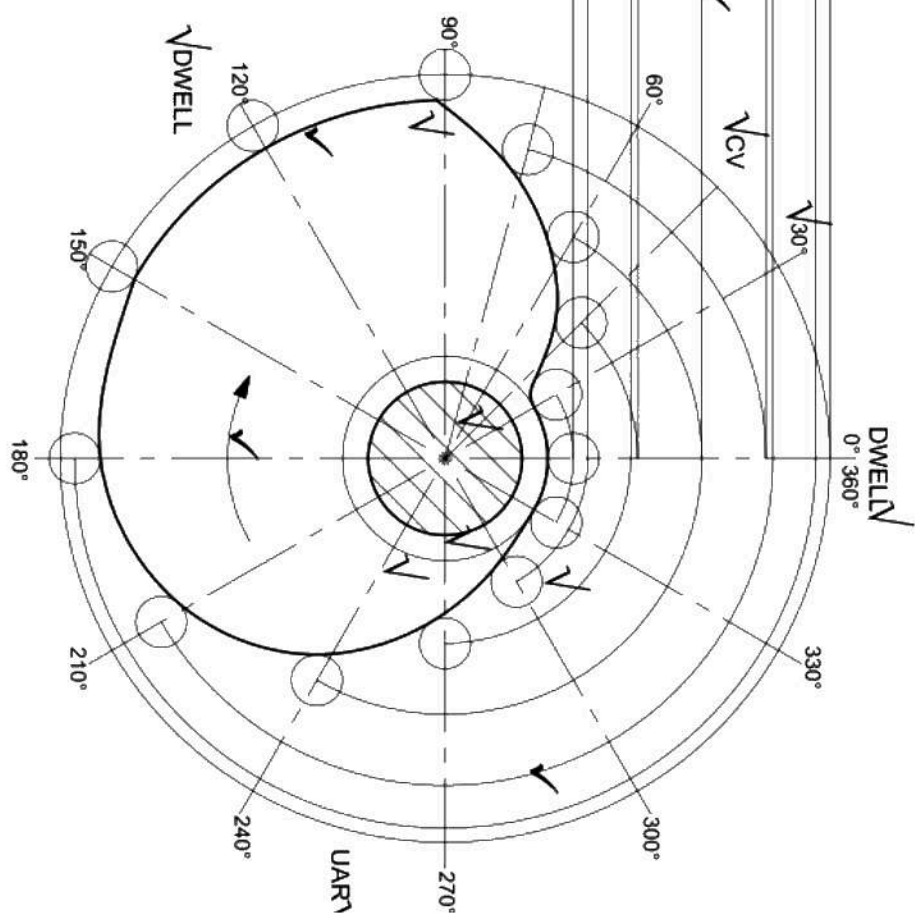
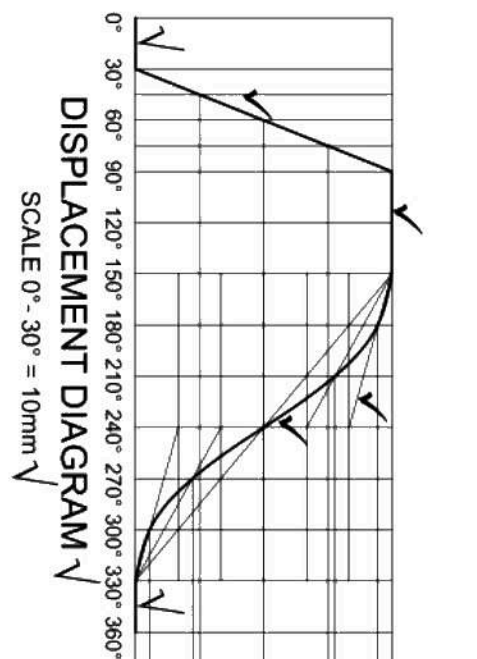
$$\text{KEYWAY WIDTH} = \frac{40}{4} = 10 \quad \checkmark$$

$$\text{KEYWAY DEPTH} = \frac{\text{SHAFT } \phi}{12}$$

$$\text{KEYWAY DEPTH} = \frac{40}{12} = 3.33 \quad \checkmark$$

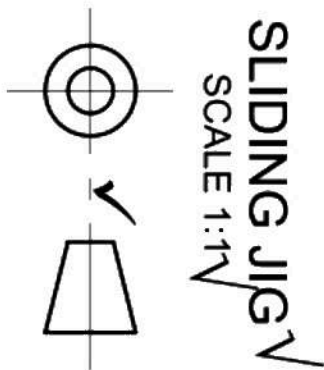
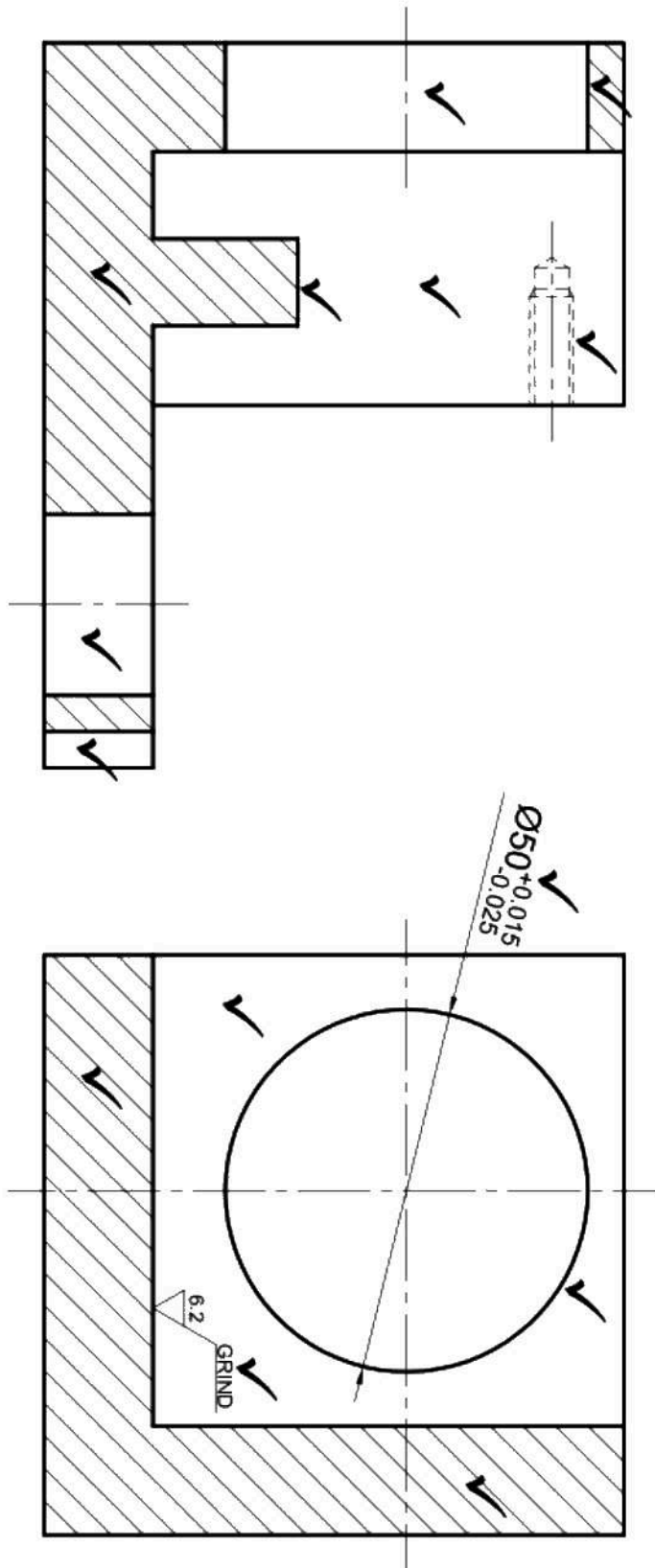
MARK ALLOCATION	
Correctness	5
Title and Scale	1
Projection Symbol	1
Line work	1
Calculations	2
Total	10

QUESTION 2: DISC CAM



MARK ALLOCATION	
Displacement Diagram	5
Cam Profile	7
Construction Lines	2
Title and scale	1
Total	15

QUESTION 3: SECTIONAL DRAWING

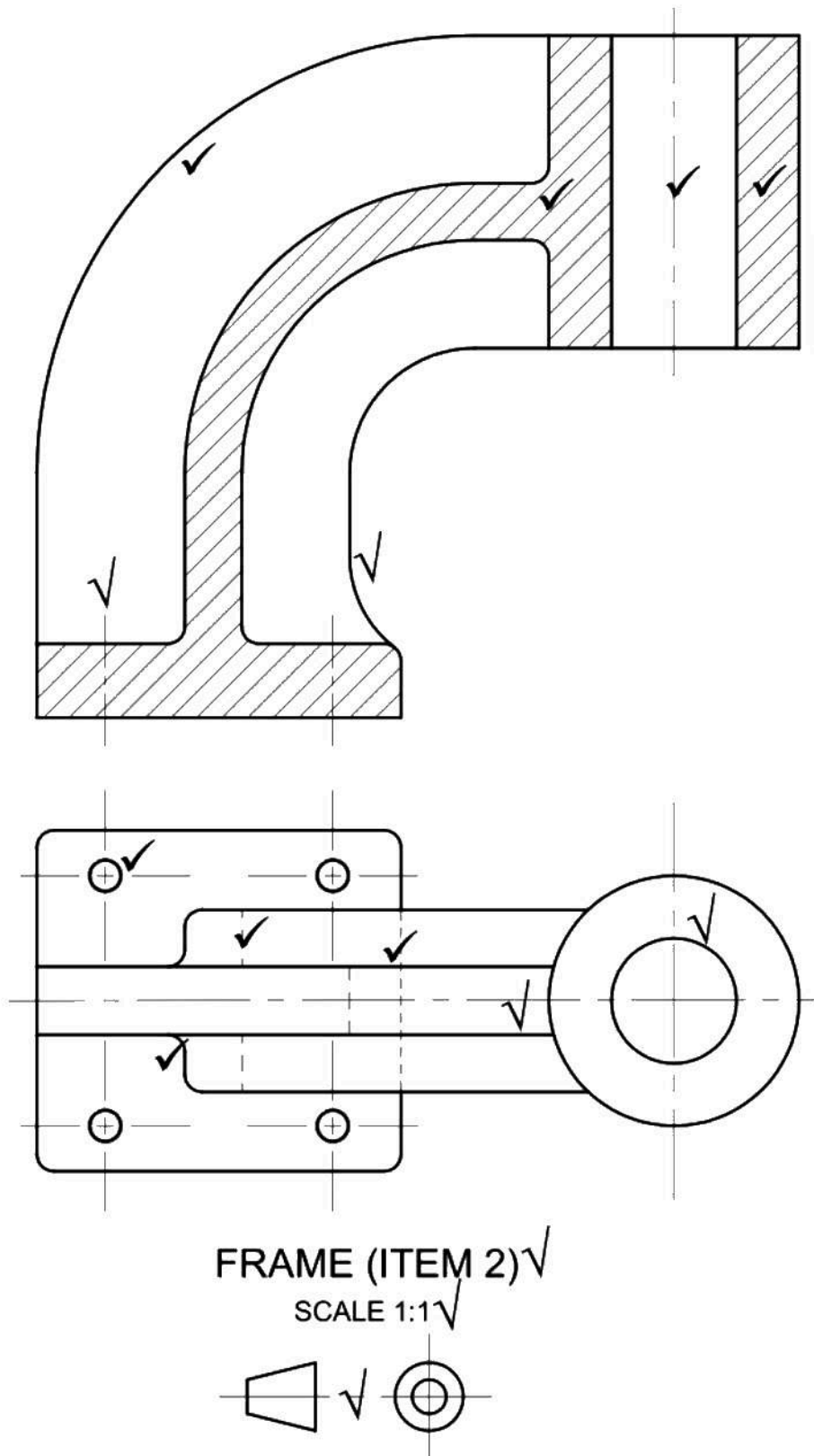


MARK ALLOCATION			
	FV	RV	
Correctness	8	4	
Line work	1	1	
Accuracy	1	1	
Title and Scale		1	
Projection symbol		1	
Dimensions		2	
Total		20	

[20]

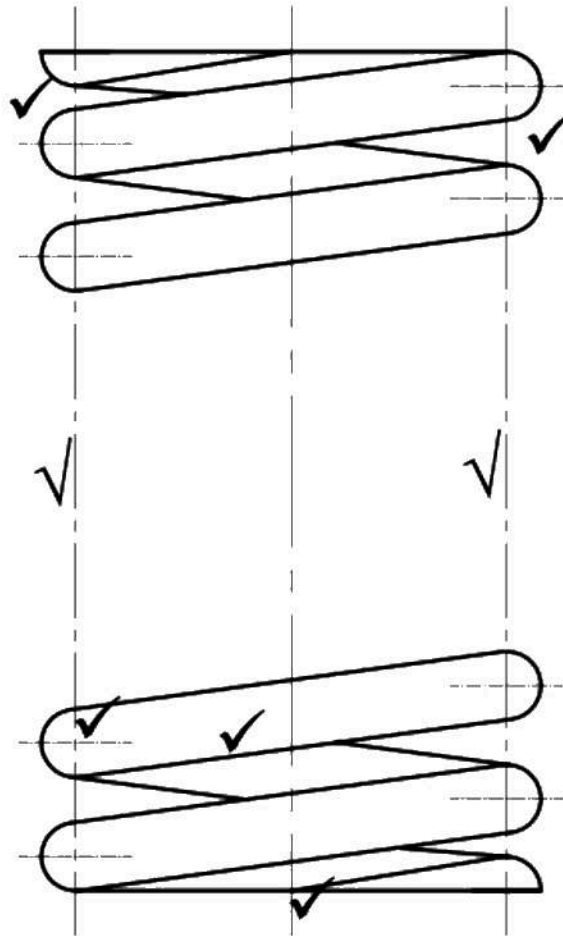
QUESTION 4: DETAIL DRAWING

4.1

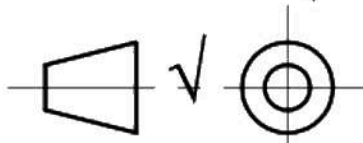


(14)

4.2

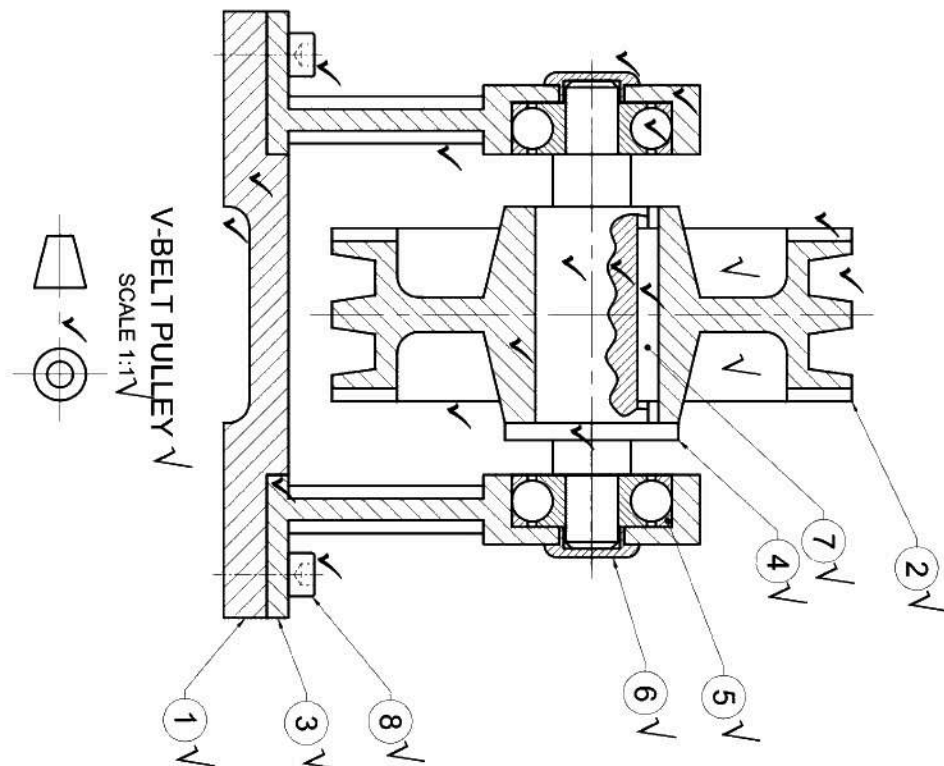


SPRING (ITEM 5)✓
SCALE 3:1✓



(11)
[25]

QUESTION 5: ASSEMBLY DRAWING



ITEM	NAME	QTY	MATERIAL	REMARKS
ITEM 1	BASE	1 OFF	MILD STEEL	
ITEM 2	PULLEY	1 OFF	MILD STEEL	
ITEM 3	BRACKET	2 OFF	CAST STEEL	
ITEM 4	SHAFT	1 OFF	STEEL ALLOY	
ITEM 5	BALL BEARING	2 OFF	H/S STEEL	
ITEM 6	SHAFT CAP	2 OFF	ABS PLASTIC	
ITEM 7	PARALLEL KEY	1 OFF	MILD STEEL	
ITEM 8	SOCKET HEAD SCREW	4 OFF	MILD STEEL	

MARK ALLOCATION	
Correctness	18
Accuracy	2
Linework	2
Projection Symbol	1
Title and scale	1
Item numbers	4
Parts list	2
Total	30

[30]

TOTAL: 100