ISEBE LEMFUNDO LEMPUMA KOLONI
EASTERN CAPE EDUCATION DEPARTMENT
OOS-KAAP ONDERWYSDEPARTEMENT

NATIONAL SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P2

SEPTEMBER 2026

PREPARATORY EXAMINATION
MARKING GUIDELINE

MARKS: 200

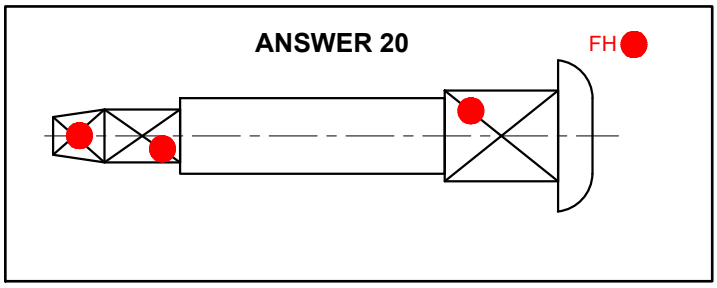
This marking guideline consists of 7 pages.

Copyright reserved

Thank you for choosing www.ecexams.co.za to download examination documents.

QUESTION 1: ANALYTICAL (MECHANICAL)

ANSWERS		
1	2026/02/21	1
2	AIRCRAFT BRACKET	1
3	CAD	1
4	30 000	1
5	HARDENING	1
6	±0,25	1
7	CUTTING PLANE	1
8	RIGHT VIEW	2
9	COUNTERSINK	1
10	MULTIPLANE / OFFSET / STAGGERED	1
11	SUCCESIVE	2
12	B = 60° , C = 200 mm , D = 3 mm , E = 29 mm	4
13	WEB / RIB	1
14	DEPTH	1
15	CENTERS	1
16	8 x 0,1 = 0,8 mm	1
17	ATTACHMENT SURFACE FOR FASTERNERS	2
18	NO MACHINING REQUIRED	1
19	48 - 0,15 = 47,85 mm	2
20	SEE BELOW	2
	TOTAL	**28**

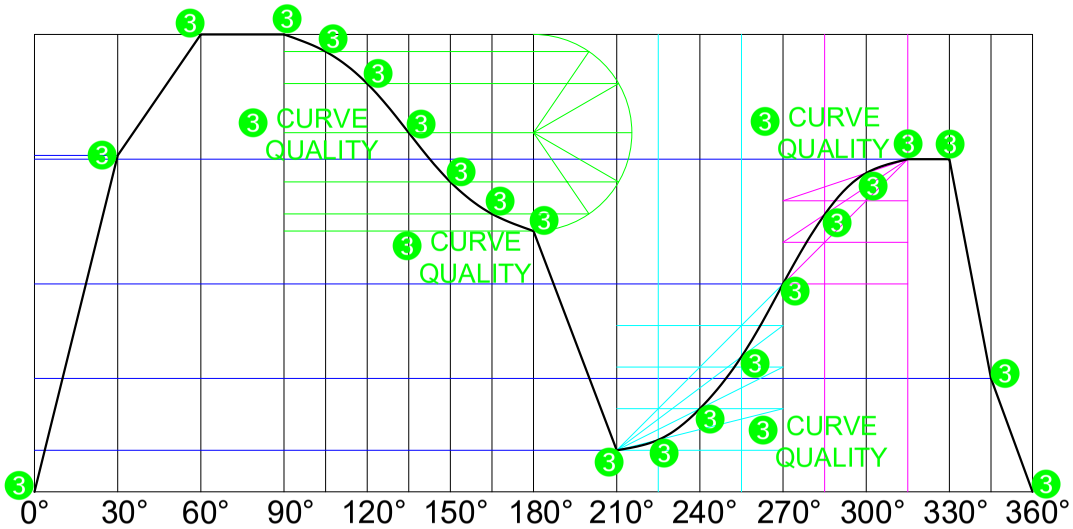


Copyright reserved

Thank you for choosing www.ecexams.co.za to download examination documents.

Thank you for choosing www.ecexams.co.za to download examination documents.

QUESTION 2: LOCI (CAM)



DISPLACEMENT GRAPH
SCALE 360° = 132 mm

2. CONSTRUCTION OF DIAGRAM

• BASE LENGTH 132 mm	0,5
• 12 DIVISIONS	0,5

UNIFORM ACCELERATION + RETARDATION

• HEIGHT DIVISION	0,5
• FIRST HALF CONSTRUCTION	0,5
• SECOND HALF CONSTRUCTION	0,5
• 15° SUBDIVISIONS	0,5

SIMPLE HARMONIC MOTION

• SEMI CIRCLE	0,5
• CIRCLE DIVISION	0,5
• 15° SUBDIVISION	0,5
• PROJECTION	0,5
TOTAL	**5**

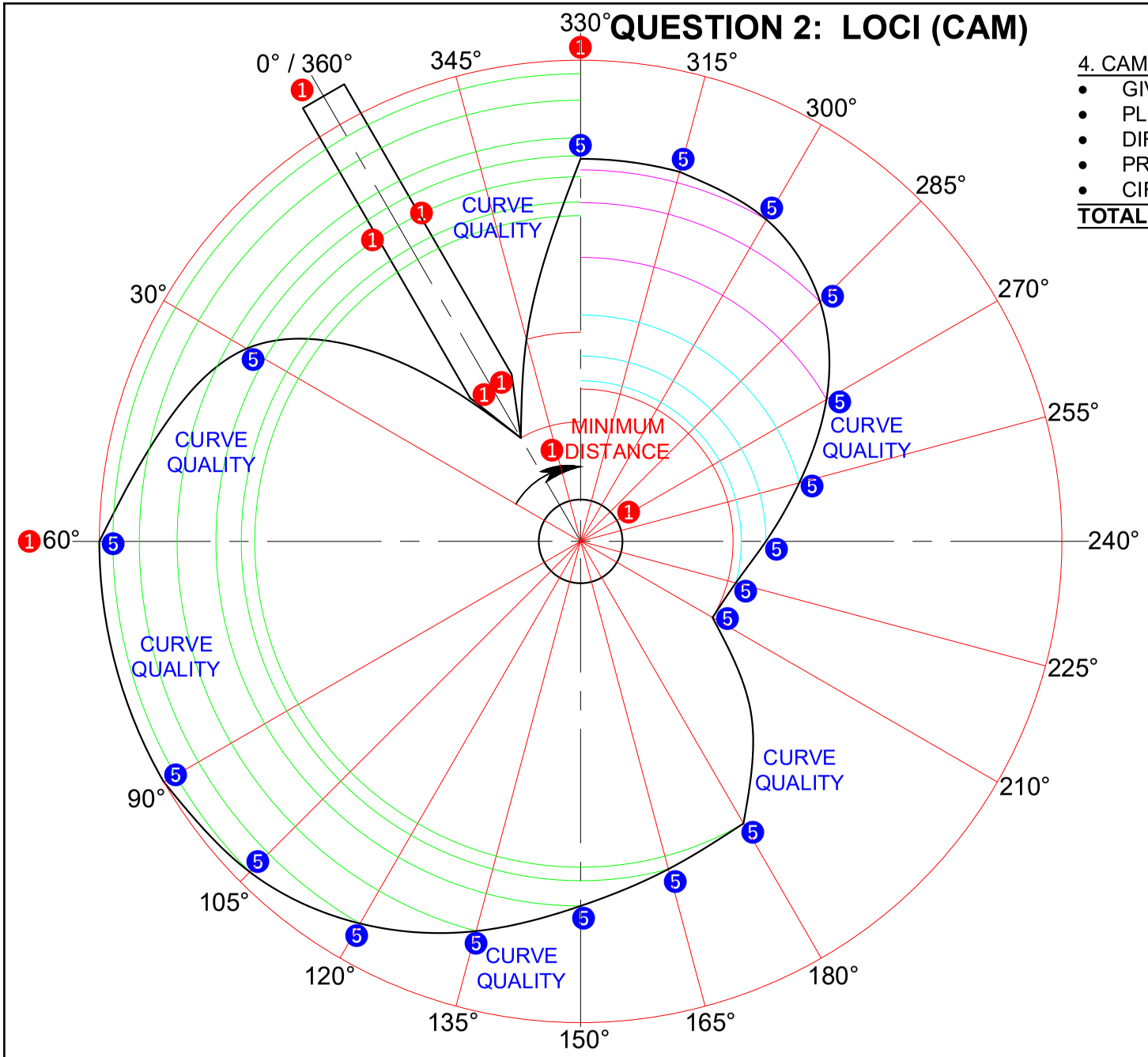
	ASSESSMENT CRITERIA		
1	1	GIVEN + MINIMUM DISTANCE + CL	$4\frac{1}{2}$
2	2	GRAPH CONSTRUCTION	5
3	3	DISPLACEMENT GRAPH	13
4	4	CAM CONSTRUCTION	4
5	5	CAM PROFILE + CURVE QUALITY	12
		TOTAL	**$38\frac{1}{2}$**

3

Copyright reserved

Thank you for choosing www.ecexams.co.za to download examination documents.

QUESTION 2: LOCI (CAM)



4. CAM CONSTRUCTION

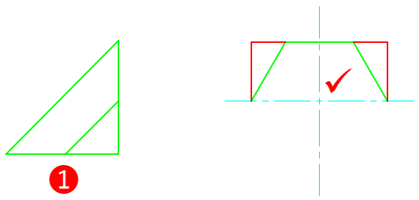
• GIVEN POSITION EQUALS 0°	0,5
• PLOT DIRECTION CLOCKWISE	1
• DIRECTION INDICATION BY ARROW	0,5
• PROJECTION / TRANSFER FROM GRAPH	1
• CIRCLE DIVISION	1
TOTAL	**4**

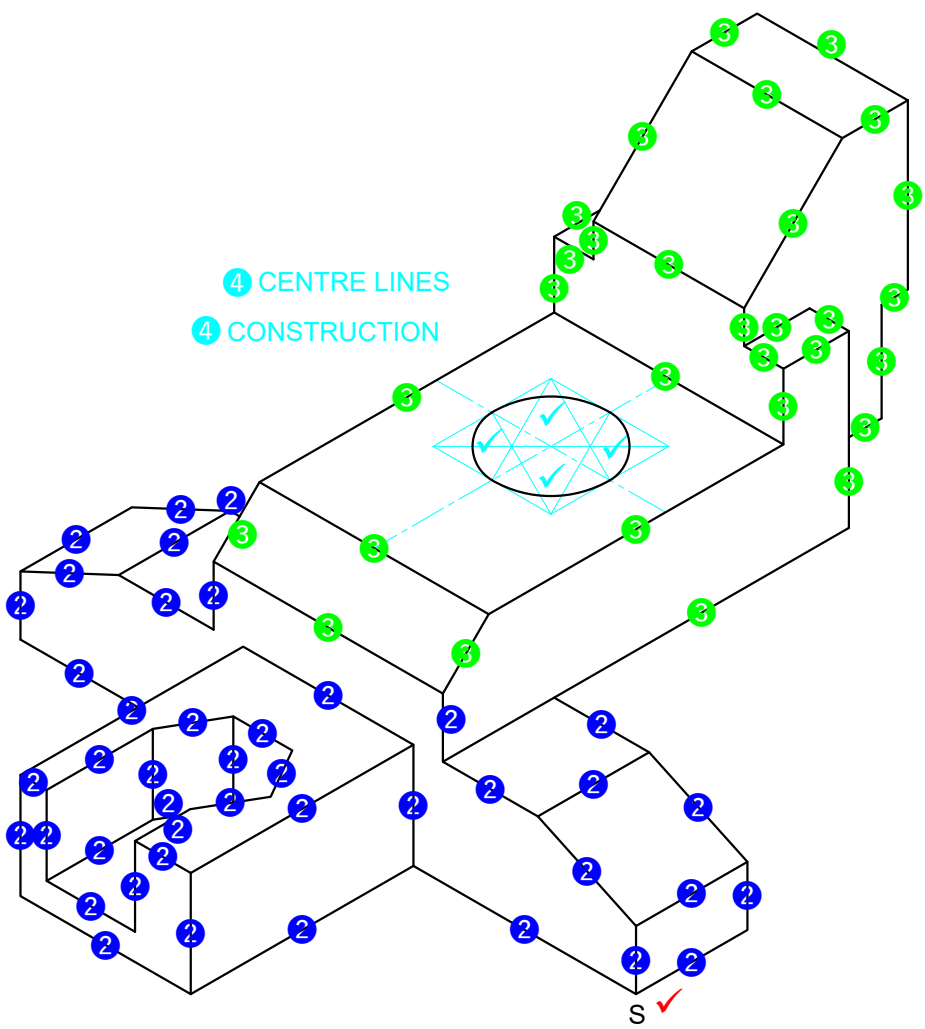
	ASSESSMENT CRITERIA		
1	1	GIVEN + MINIMUM DISTANCE + CL	$4\frac{1}{2}$
2	2	GRAPH CONSTRUCTION	5
3	3	DISPLACEMENT GRAPH	13
4	4	CAM CONSTRUCTION	4
5	5	CAM PROFILE + CURVE QUALITY	12
		TOTAL	**$38\frac{1}{2}$**

4

Copyright reserved

QUESTION 3: ISOMETRIC





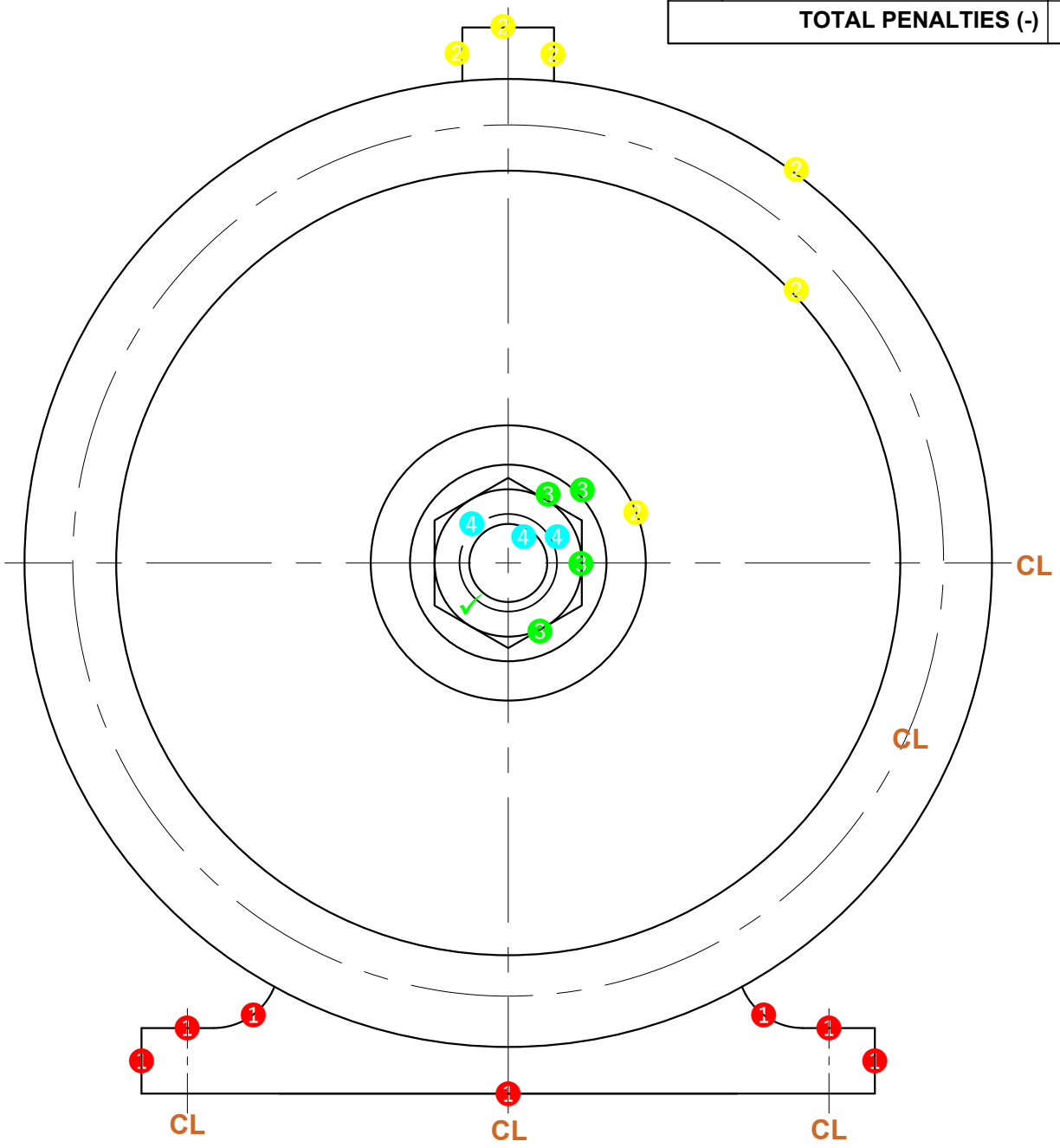
ASSESSMENT CRITERIA			
1	AUX VIEW+ PLACEMENT	$22\frac{1}{2}$	1 ✓
2	LOWER PORTION	$21\frac{1}{2}$	2
3	UPPER PORION	15	3
4	CIRCLE + CL'S	5	4 ✓
	TOTAL	**44**	

Copyright reserved

Thank you for choosing www.ecexams.co.za to download examination documents.

QUESTION 4: MECHANICAL ASSEMBLY

PENALTIES		
1	WRONG SCALE	-2
2	PARTS NOT ASSEMBLED (-1 PER PART)	-10
3	WRONG HATCHING	-2
	TOTAL PENALTIES (-)	



RIGHT VIEW			
1	1	HOUSING	$3\frac{1}{2}$
2	2	PIN AND SPUR GEAR	3
3	3	WASHER AND NUT	3
4	4	SHAFT	$1\frac{1}{2}$
		SUB-TOTAL	11

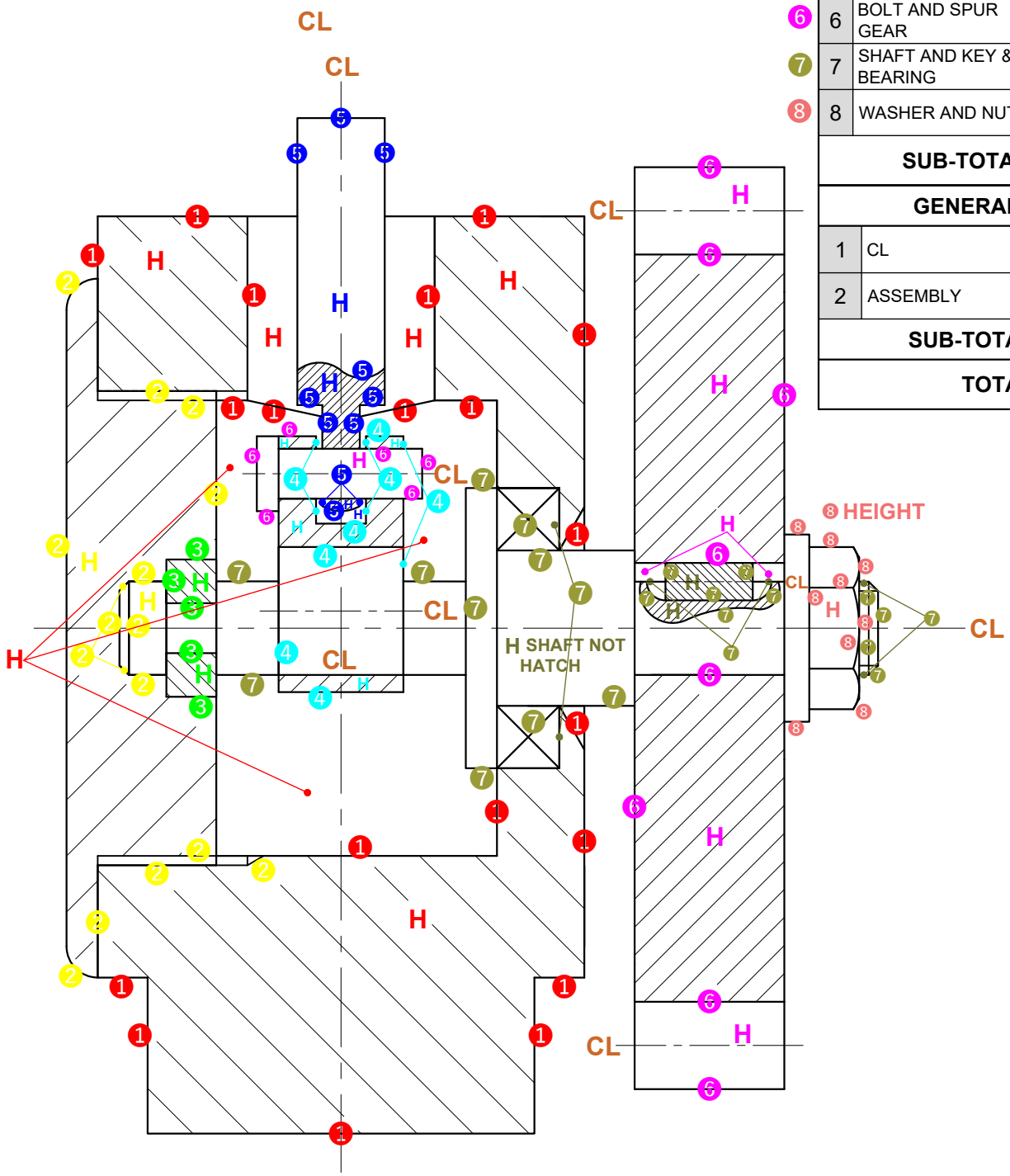
Copyright reserved

Thank you for choosing www.ecexams.co.za to download examination documents.

QUESTION 4: MECHANICAL ASSEMBLY

SECTIONAL FRONT VIEW			
1	1	HOUSING	13
2	2	CAP	$8\frac{1}{2}$
3	3	SEAL	$3\frac{1}{2}$
4	4	CAM	6
5	5	PIN	7
6	6	BOLT AND SPUR GEAR	$9\frac{1}{2}$
7	7	SHAFT AND KEY & BEARING	$12\frac{1}{2}$
8	8	WASHER AND NUT	$5\frac{1}{2}$
		SUB-TOTAL	**$65\frac{1}{2}$**

GENERAL		
1	CL	2
2	ASSEMBLY	11
	SUB-TOTAL	**13**
	TOTAL	**$89\frac{1}{2}$**


CL
CL
H
H
H
H
H
H
H
H
H
H
CL
CL
CL
CL
H SHAFT NOT HATCH
8 HEIGHT
H
H
H
H
H
H
H
H
H
H

ISEBE LEMFUNDO LEMPUMA KOLONI
EASTERN CAPE EDUCATION DEPARTMENT
OOS-KAAP ONDERWYSDEPARTEMENT

NASIONALE SENIOR SERTIFIKAAT

GRAAD 12

INGENIEURSGRAFIKA EN -ONTWERP V2

SEPTEMBER 2026

VOORBEREIDINGSEKSAMEN
NASIENRIGLYN

PUNTE: 200

Hierdie nasienriglyn bestaan uit 7 bladsye.

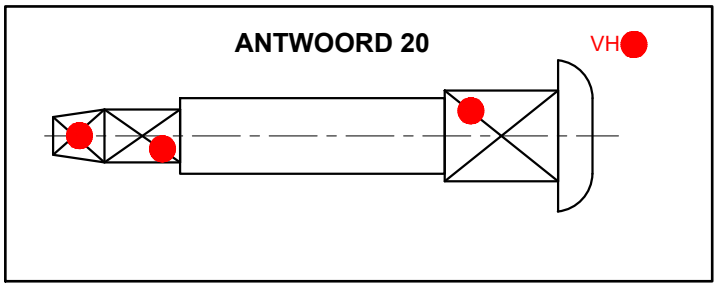
Kopiereg voorbehou

Thank you for choosing www.ecexams.co.za to download examination documents.

VRAAG 1: ANALITIES (MEGANIES)

ANTWOORDE		
1	2026/02/21	1
2	VLIEGTUIG LAERSTEUNSTUK	1
3	CAD / RGO	1
4	30 000	1
5	VERHARDING	1
6	±0,25	1
7	SNYVLAK	1
8	REGTERAANSIG	2
9	TEENAANBORING	1
10	MULTIVLAKSNIT	1
11	AGTEREENVOLGEND	2
12	B = 60° , C = 200 mm , D = 3 mm , E = 29 mm	4
13	WEB / RIB	1
14	DIEPTE	1
15	SENTERS	1
16	8 x 0,1= 0,8 mm	1
17	VASMAAKPLEK	2
18	GEEN MASJINEERING	1
19	48 - 0,15 = 47,85 mm	2
20	SIEN HIERONDER	2
	TOTAAL	**28**

ANTWOORD 20

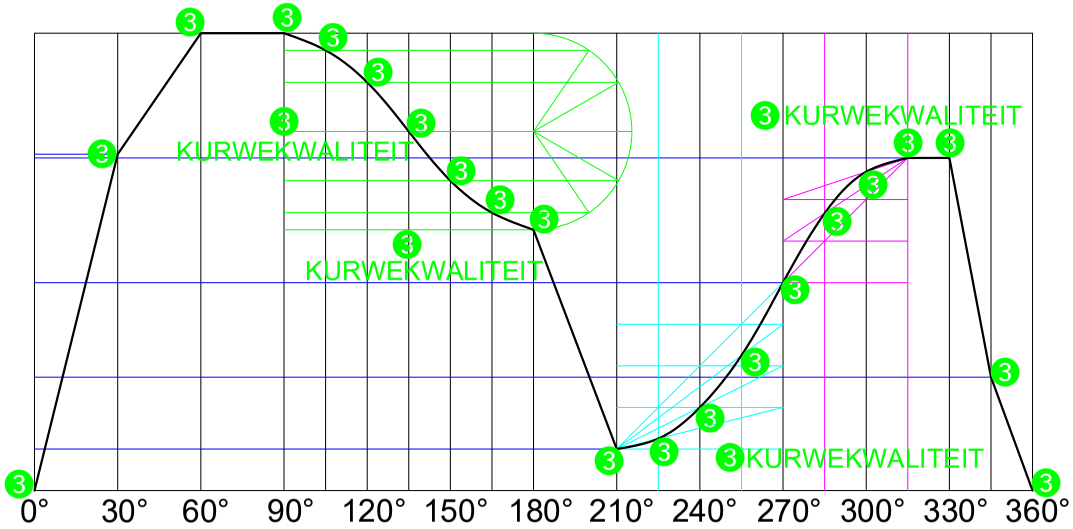


Kopiereg voorbehou Blaai om asseblief

Thank you for choosing www.ecexams.co.za to download examination documents.

Thank you for choosing www.ecexams.co.za to download examination documents.

VRAAG 2: LOKUS (NOK)



VERPLASINGSGRAFIEK
SKAAL 360° = 132 mm

2. KONSTRUKSIE VAN DIAGRAM
- BASISLENGTE 132 mm 0,5
- 12 VERDELINGS 0,5

EENVORMIGE VERSNELLING + VERTRAGING
- HOOGTE VERDELINGS 0,5
- EERSTE HELFDE KONSTRUKSIE 0,5
- TWEEDE HELFDE KONSTRUKSIE 0,5
- 15° ADDISIONELE VERDELINGS 0,5

EENVOUDIGE HARMONIESE BEWEEGING
- SEMISIRKEL 0,5
- SIRKEL VERDELING 0,5
- 15° ADDISIONELE VERDELINGS 0,5
- PROJEKSIE 0,5

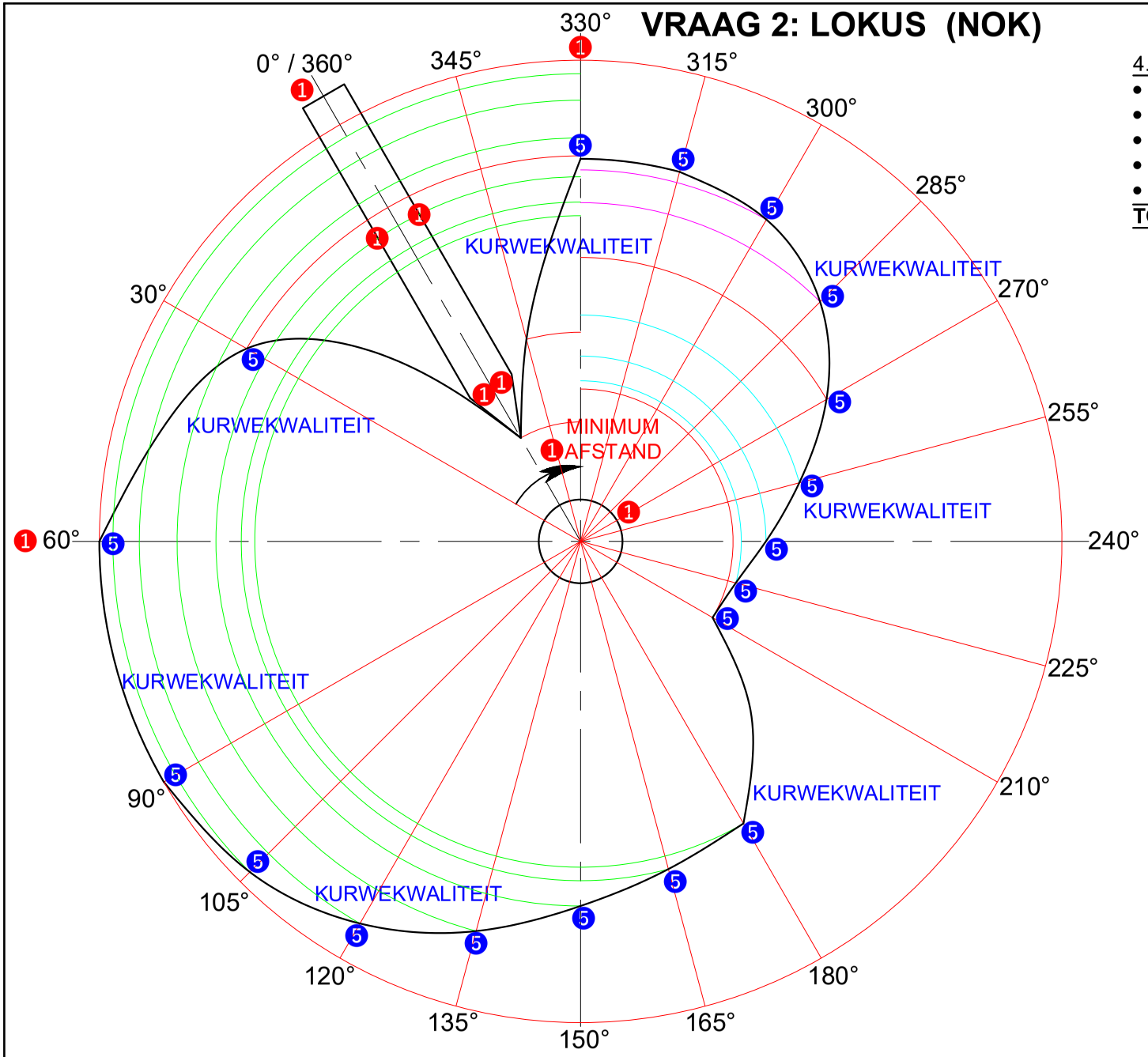
TOTAAL 5

ASSESSERINGSKRITERIA				
1	1	GEGEE + MINIMUM AFSTAND + SL	$4\frac{1}{2}$	
2	2	GRAFIEKKONSTRUKSIE	5	
3	3	VERPLASINGSGRAFIEK	13	
4	4	KONSTRUKSIE VAN NOK	4	
5	5	NOK PROFIEL + KURWEKWALITEIT	12	
		TOTAAL	**$38\frac{1}{2}$**	

3

Thank you for choosing www.ecexams.co.za to download examination documents.

VRAAG 2: LOKUS (NOK)



4. NOKKONSTUKSIE

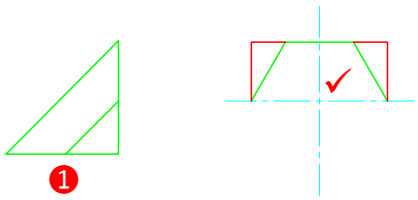
• GEGEDE POSISIE GELYK AAN 0°	0,5
• UITSTRIP RIGTING KLOKGEWYS	1
• DUI AAN RIGTING MET PYL	0,5
• PROJEKSIE VANAF GRAFIEK	1
• SIRKEL VERDELING	1
TOTAAL	**4**

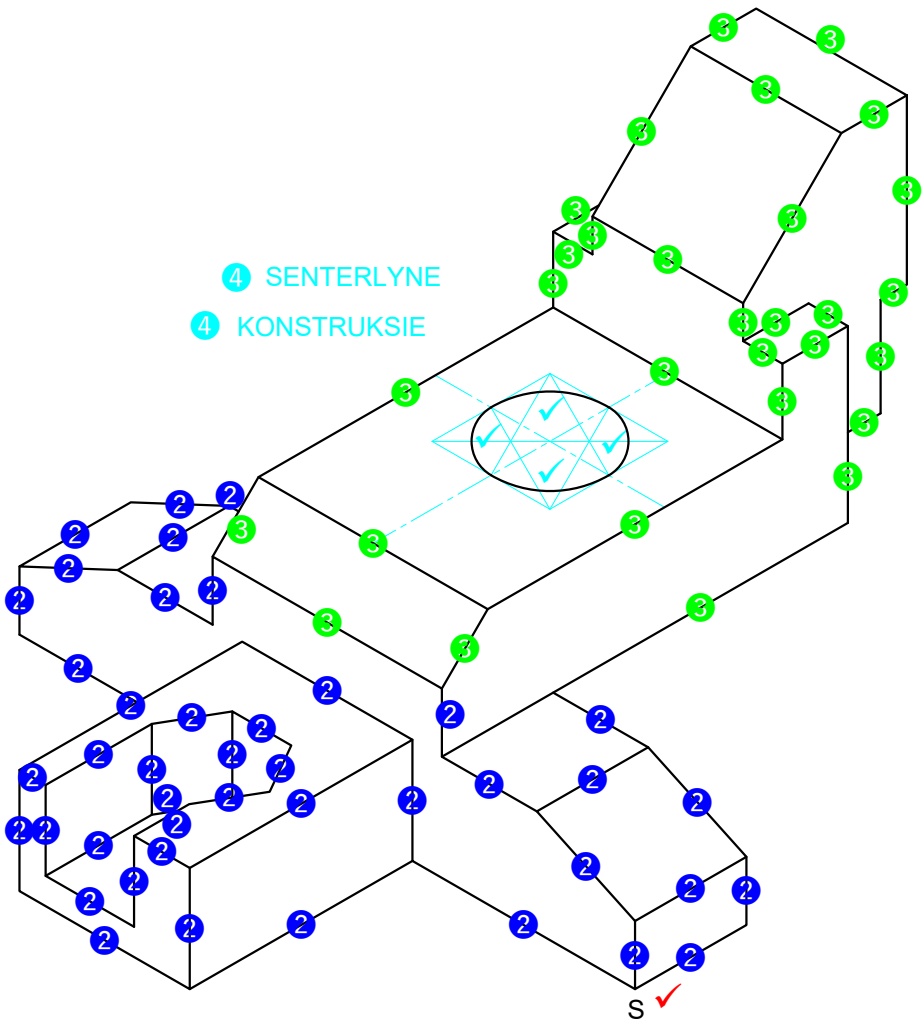
ASSESSERINGSKRITERIA				
1	1	GEGEE + MINIMUM AFSTAND + SL	$4\frac{1}{2}$	
2	2	KONSTRUKSIE VAN GRAFIEK	5	
3	3	VERPLASINGS VAN GRAFIEK	13	
4	4	KONSTRUKSIE VAN NOK	4	
5	5	NOKPROFIEL + KURWEKWALITEIT	12	
		TOTAAL	**$38\frac{1}{2}$**	

Kopiereg voorbehou

Blaai om asseblief

VRAAG 3: ISOMETRIES





ASSESSERINGSKRITERIA			
1	HULPAANSIG + PLASING	$22\frac{1}{2}$	1 ✓
2	ONDER HELFTE	$21\frac{1}{2}$	2
3	BOONSTE HELFTE	15	3
4	SIRKEL + SL'E	5	4 ✓
	TOTAAL	**44**	

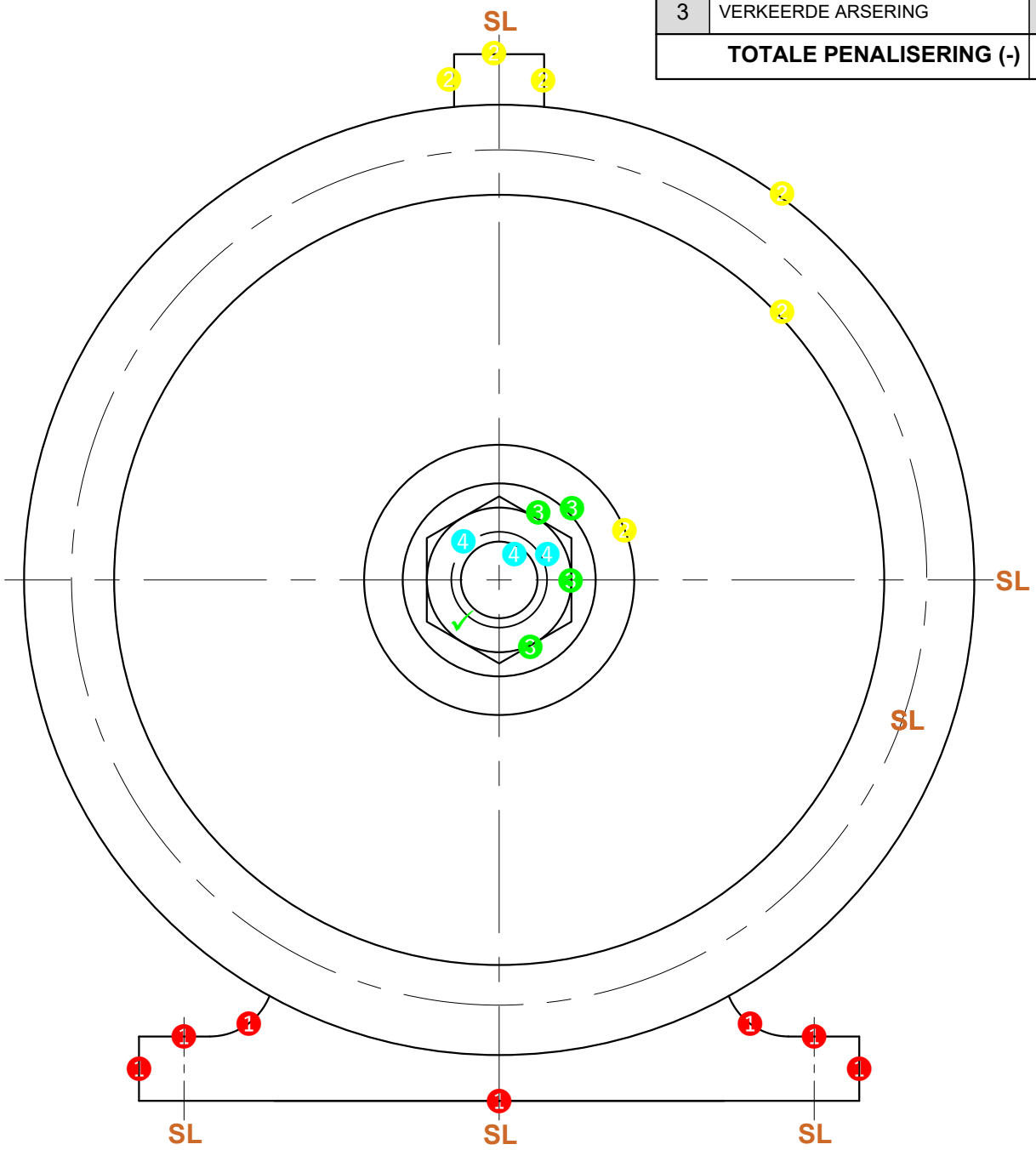
Kopiereg voorbehou

Blaai om asseblief

Thank you for choosing www.ecexams.co.za to download examination documents.

VRAAG 4: MEGANIESE SAMESTELLING

PENALISERING		
1	VERKEERDE SKAAL	-2
2	ONDERDELE NIE SAAMGESTEL NIE -1 PER ONDERDEEL MAKS	-10
3	VERKEERDE ARSERING	-2
	TOTALE PENALISERING (-)	



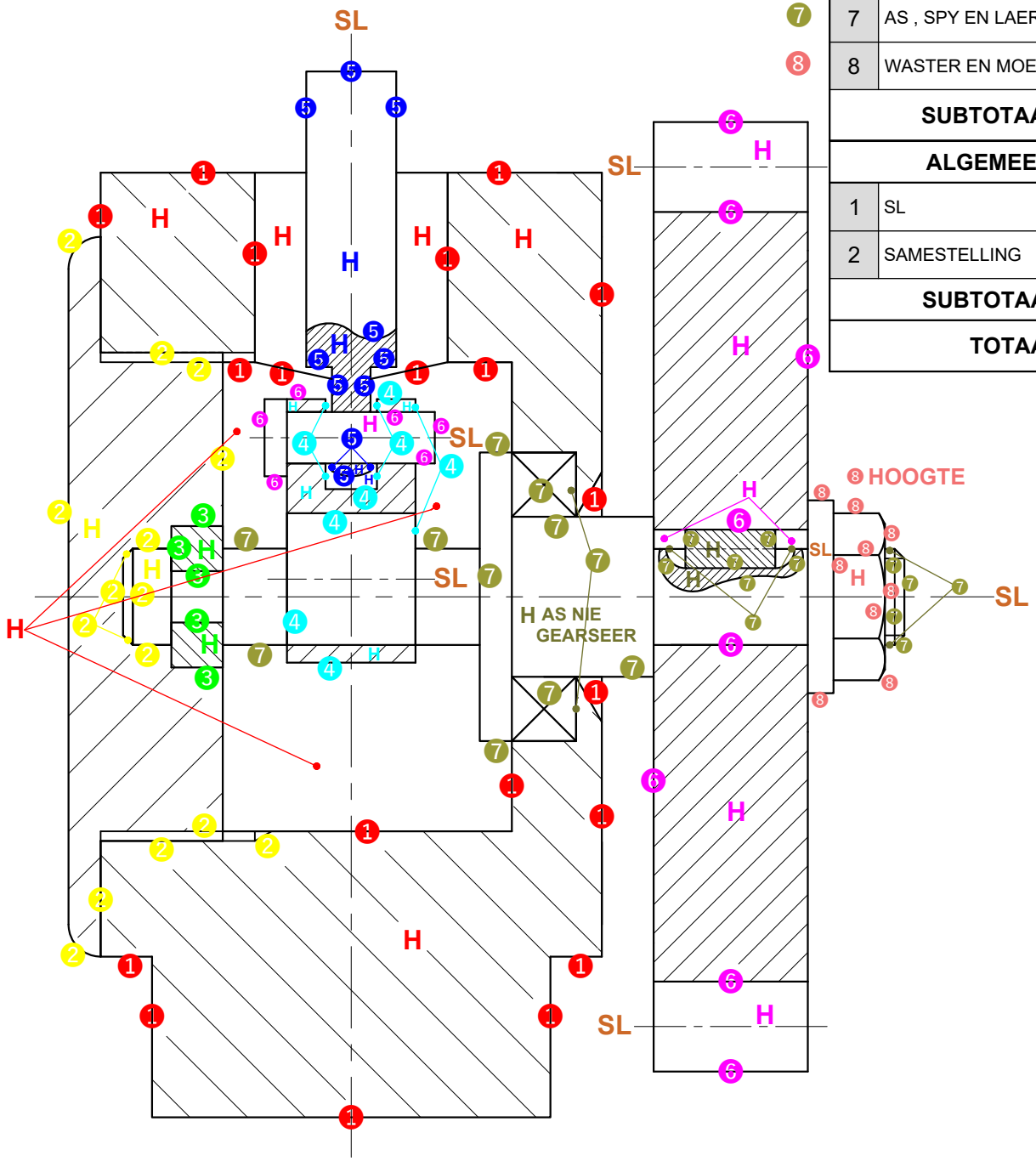
REGTERAANSIG		
1	HULSEL	$3\frac{1}{2}$
2	PEN EN REGUITTANDRAT	3
3	WASTER EN MOER	3
4	AS	$1\frac{1}{2}$
	SUBTOTAAL	11

Kopiereg voorbehou Blaai om asseblief

Thank you for choosing www.ecexams.co.za to download examination documents.

VRAAG 4: MEGANIESE SAMESTELLING

DEURSNEE VOORAANSIG		
1	HULSEL	13
2	DOP	$8\frac{1}{2}$
3	SEËL	$3\frac{1}{2}$
4	NOK	6
5	PEN	7
6	BOUT EN REGUITTANDRAT	$9\frac{1}{2}$
7	AS , SPY EN LAER	$12\frac{1}{2}$
8	WASTER EN MOER	$5\frac{1}{2}$
	SUBTOTAAL	**$65\frac{1}{2}$**
ALGEMEEN		
1	SL	2
2	SAMESTELLING	11
	SUBTOTAAL	**13**
	TOTAAL	**$89\frac{1}{2}$**



1. SENTERLYNE

VOLDOEN AAN SANS SENTERLYNE	1
(1 - 7 = 0,5 ; 8 - 12 = 1)	$\frac{1}{2}$
TOTAAL	

Kopiereg voorbehou

Blaai om asseblief

Thank you for choosing www.ecexams.co.za to download examination documents.

ISEBE LEMFUNDO LEMPUMA KOLONI
EASTERN CAPE EDUCATION DEPARTMENT
OOS-KAAP ONDERWYSDEPARTEMENT

GRADE 12

ENGINEERING GRAPHICS AND DESIGN
PAPER 2
SEPTEMBER 2026
PREPATORY EXAMINATION
MARKING GUIDELINES

WEIGHTING OF QUESTIONS					
QUESTION	LOW	MIDDLE	HIGH	TOTAL	% OF PAPER
1	11.0	9.0	8.0	**28.0**	**14.0**
	39.3	32.1	28.6		
2	11.5	16.0	11.0	**38.5**	**19.3**
	29.9	41.6	28.6		
3	15.0	16.0	13.0	**44.0**	**22.0**
	34.1	36.4	29.5		
4	25.5	35.0	29.0	**89.5**	**44.8**
	28.5	39.1	32.4		
TOTAL	63.0	76.0	61.0	**200.0**	
	32.9	37.3	29.8		

Thank you for choosing www.ecexams.co.za to download examination documents.