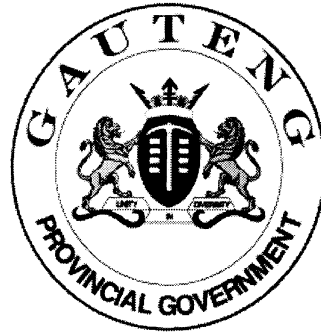


**SENIOR CERTIFICATE
EXAMINATION
*SENIORSERTIFIKAAT-EKSAMEN***



**FEBRUARY / MARCH
*FEBRUARIE / MAART***

2007

**TECHNICAL DRAWING
*TEGNIесе TEKENE***

**First Paper: Descriptive Geometry and
Locus
*Eerste Vraestel : Beskrywende
Meetkunde en Lokus***

SG

711-2/1

**Cover + 7 pages
*Voorblad + 7 bladsye***

TECHNICAL DRAWING/TEGNIесе TEKENE SG
Paper 1/Vraestel 1



X05



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GAUTENG DEPARTMENT OF
 EDUCATION
 SENIOR CERTIFICATE EXAMINATION

GAUTENGSE DEPARTEMENT VAN
 ONDERWYS
 SENIORSERTIFIKAAT-EKSAMEN

TECHNICAL DRAWING SG
 (First Paper: Descriptive Geometry and Locus)

TEGNIесе TEKENE SG
 (Eerste Vraestel: Beskrywende Meetkunde en
 Lokus)

TIME: 3 hours
 MARKS: 150

TYD: 3 uur
 PUNTE: 150



INSTRUCTIONS:

- 1) Answer **ALL** questions on ANSWER SHEETS 711-2/1(Z).
- 2) Print your EXAMINATION NUMBER in the title block at the bottom of each sheet.
- 3) Use a scale of 1:1 for all questions.
- 4) All construction and projection lines must be shown.
- 5) Tabulate your answers where applicable.
- 6) Staple all answer sheets together in numerical order.
- 7) Neatness and clear presentations will count in your favour.
- 8) Do not use coloured pens or pencils.
- 9) All questions are compulsory.

INSTRUKSIES:

- 1) Beantwoord **ALLE** vrae op die ANTWOORDVELLE 711-2/1(Z).
- 2) Drukskryf jou EKSAMENNOMMER in die titelblok onderaan elke antwoordvel.
- 3) Gebruik 'n skaal van 1:1 vir alle antwoorde.
- 4) Toon alle konstruksie- en projeksielyne.
- 5) Tabuleer jou antwoorde waar nodig.
- 6) Kram alle antwoordvelle vas in numeriese volgorde.
- 7) Netheid en 'n duidelike aanbieding sal in jou guns tel.
- 8) Die gebruik van gekleurde lood en penne is verbode.
- 9) Alle vrae is verpligtend.

Vraag / Question	Totaal/Total		
1	27		
2	25		
3	30		
4	18		
5	28		
6	22		
Totaal / Total	150		

EXAMINATION NO.
 EKSAMENNOMMER

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QUESTION 1

<p>Figure 1.1 shows the traces VT and HT as well as the top view of line segment AB. Determine:</p>		
1.1.1	The front view of the line segment	3
1.1.2	The true inclination of the line segment with the horizontal plane	5
1.1.3	The true length of the line segment	1
<p>Figure 1.2 shows the front and top views of line segment CD as well as point P. Determine the shortest distance between the line segment and point P.</p>		
		10
<p>Figure 1.3 shows the traces VTH and top view of plane figure BMW. The plane figure lies on the inclined plane. Determine:</p>		
1.3.1	The front view of the plane figure	4
1.3.2	The true shape of the plane figure	4
Total		27

VRAAG 1

<p>Figuur 1.1 toon die snyspore VS en HS, asook die boaansig van lynstuk AB. Bepaal:</p>		
1.1.1	Die vooraansig van die lynstuk	3
1.1.2	Die ware hoek van die lynstuk met die horisontale vlak	5
1.1.3	Die ware lengte van die lynstuk	1
<p>Figuur 1.2 toon die voor- en boaansig van lynstuk CD en punt P. Bepaal die kortste afstand tussen die lynstuk en punt P.</p>		
		10
<p>Figuur 1.3 toon die snyspore VSH asook die boaansig van vlakfiguur BMW. Die vlakfiguur lê op die hellende vlak. Bepaal:</p>		
1.3.1	Die vooraansig van die vlakfiguur	4
1.3.2	Die ware vorm van die vlakfiguur	4
Totaal		27

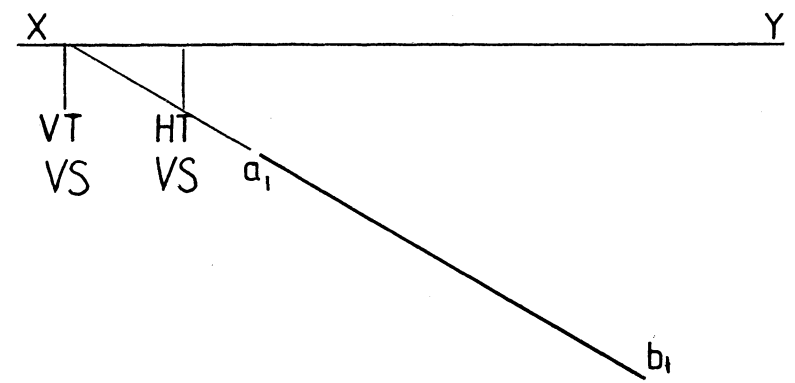


FIG.1.1

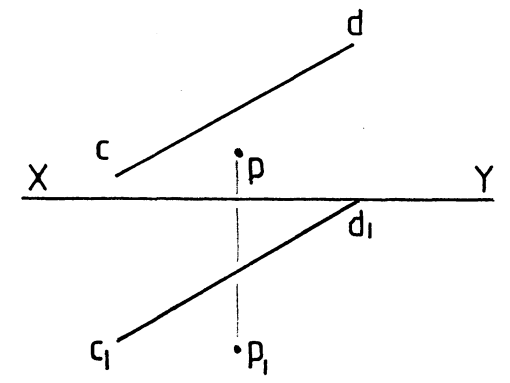


FIG.1.2

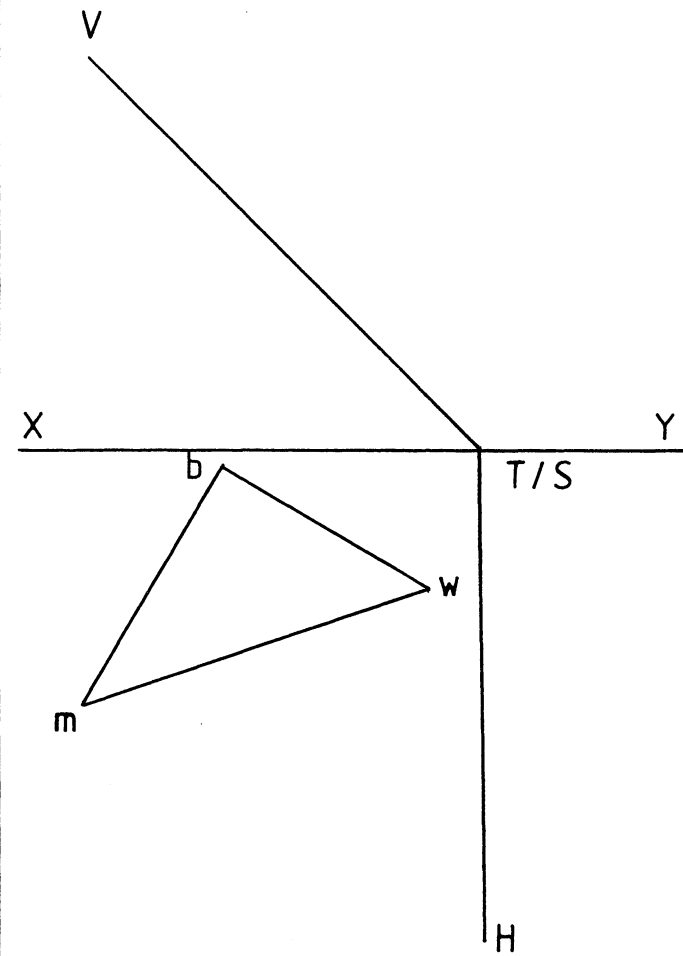


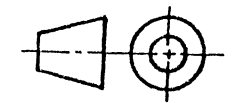
FIG.1.3

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EKSAMENNOMMER

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QUESTION 1
VRAAG 1

ANSWER SHEET 1
ANTWOORVEL 1



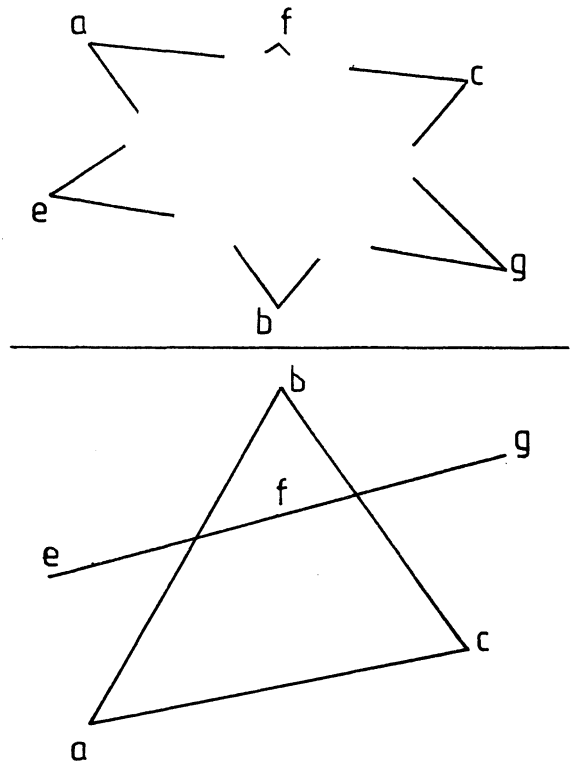


FIG.2.1

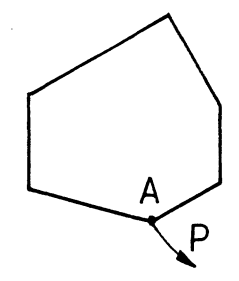


FIG.2.2

QUESTION 2

Figure 2.1 shows two penetrating plane figures. Determine:

2.1.1 The true shape of plane figure EFG	5	
2.1.2 The completed front view clearly showing all hidden detail	11	
Figure 2.2 shows a block. A piece of string is wound around the block and tied at point A . Determine the locus of the end point of the string if the string unwinds in the direction shown by the arrow P .	9	
Total	25	

VRAAG 2

Figuur 2.1 toon twee vlakfigure wat mekaar deurdring. Bepaal:

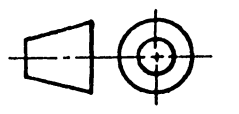
2.1.1 Die ware vorm van vlakfiguur EFG	5	
2.1.2 Die voltooide vooraansig wat die snyspoor en alle verborge detail duidelik toon.	11	
Figuur 2.2 toon 'n blokkie. 'n Stukkie tou is om die blokkie gedraai en vasgeheg by punt A . Bepaal die lokus van die eindpunt van die tou indien die tou losdraai in die rigting soos aangedui deur pyl P .	9	
Totaal	25	

EXAMINATION NO.
EKSAMENNOMMER

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QUESTION 2
VRAAG 2

ANSWER SHEET 2
ANTWOORDVEL 2



QUESTION 3

Figure 3 shows a disc as well as the contour on which it rolls.

- | | |
|---|----|
| 3.1 Construct the locus of point P if the disc rolls for one half of a revolution from A to B . | 12 |
| 3.2 Construct the locus of point P if the disc rolls for another one revolution to C .
(Show all calculations) | 18 |

Total	30
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VRAAG 3

Figuur 3 toon 'n skyf asook die kontoer waarop dit rol.

- | | |
|--|----|
| 3.1 Konstrueer die lokus van punt P indien die skyf vir 'n halwe omwenteling rol vanaf A tot B . | 12 |
| 3.2 Konstrueer die lokus van punt P indien die skyf vir 'n verdere omwenteling rol tot by C .
(Toon alle berekenings) | 18 |

Totaal	30
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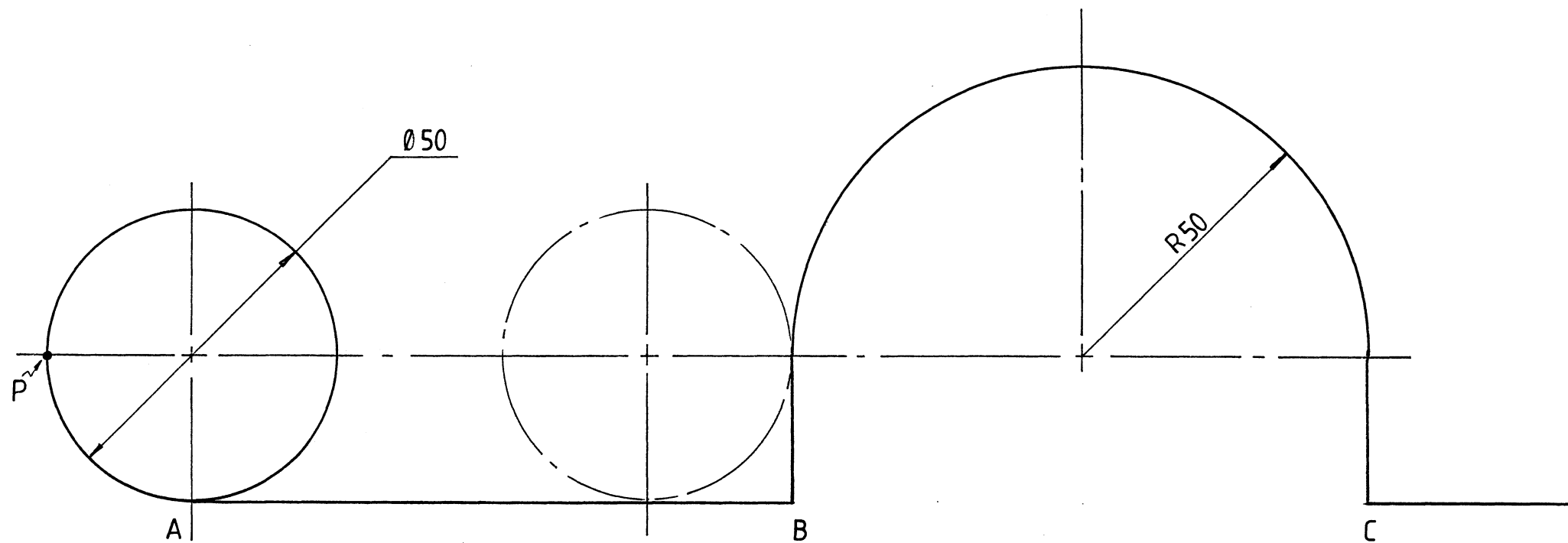


FIG. 3

EXAMINATION NO.
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QUESTION 3
VRAAG 3

ANSWER SHEET 3
ANTWOORDVEL 3



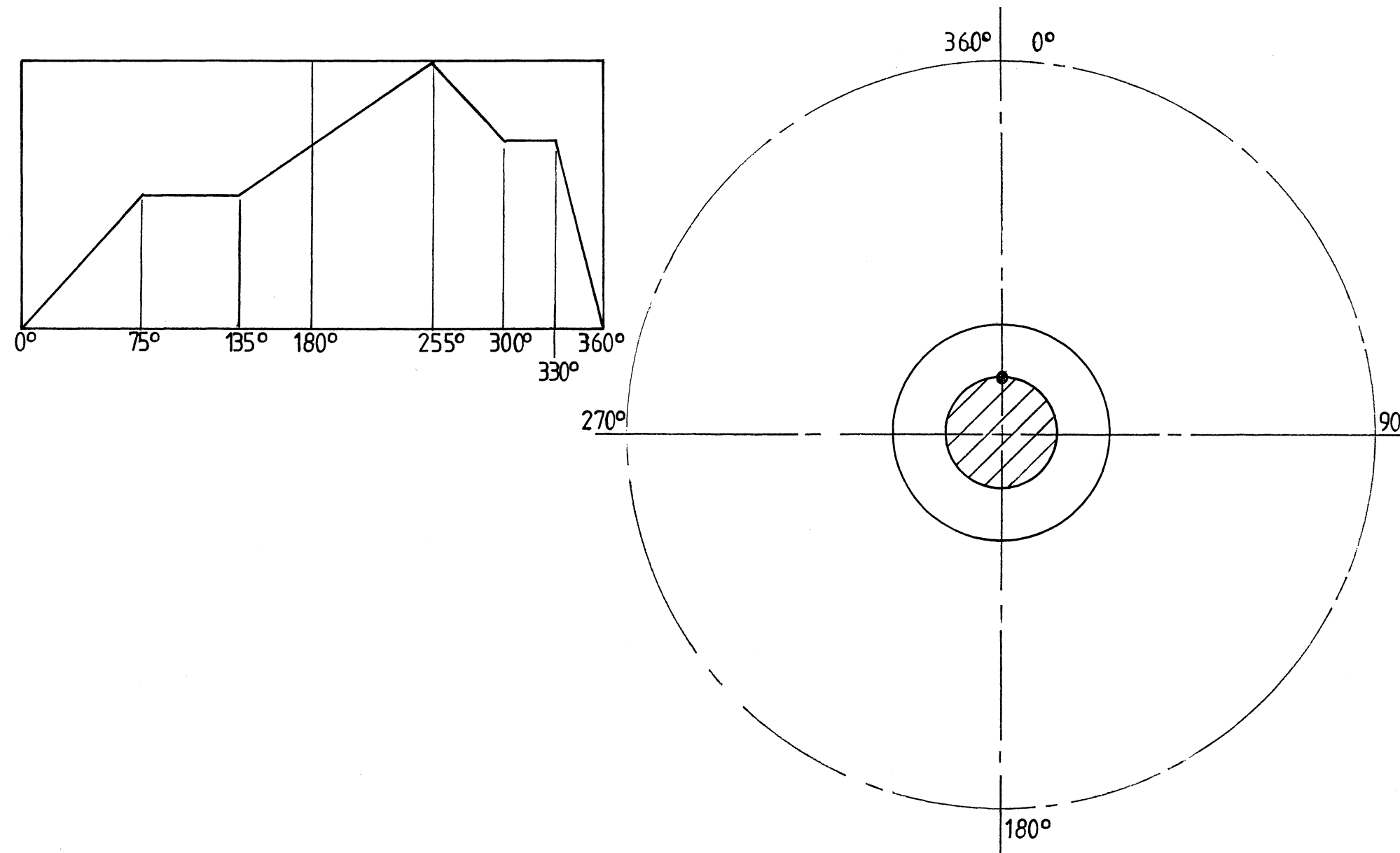


FIG. 4

QUESTION 4

Figure 4 shows the displacement diagram as well as the minimum cam radius of a wedge-shaped cam follower. Make use of the given information and construct the cam profile. Indicate the direction of rotation by means of an arrow.

Total **18**

VRAAG 4

Figuur 4 toon die verplasingsdiagram asook die minimum nokradius van 'n wigvormige nokvolger. Maak gebruik van die gegewe inligting en konstrueer die nokprofiel. Dui die draairigting aan met behulp van 'n pyltjie.

Totaal **18**

EXAMINATION NO.
EKSAMENNOMMER

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QUESTION 4
VRAAG 4

ANSWER SHEET 4
ANTWOORDVEL 4



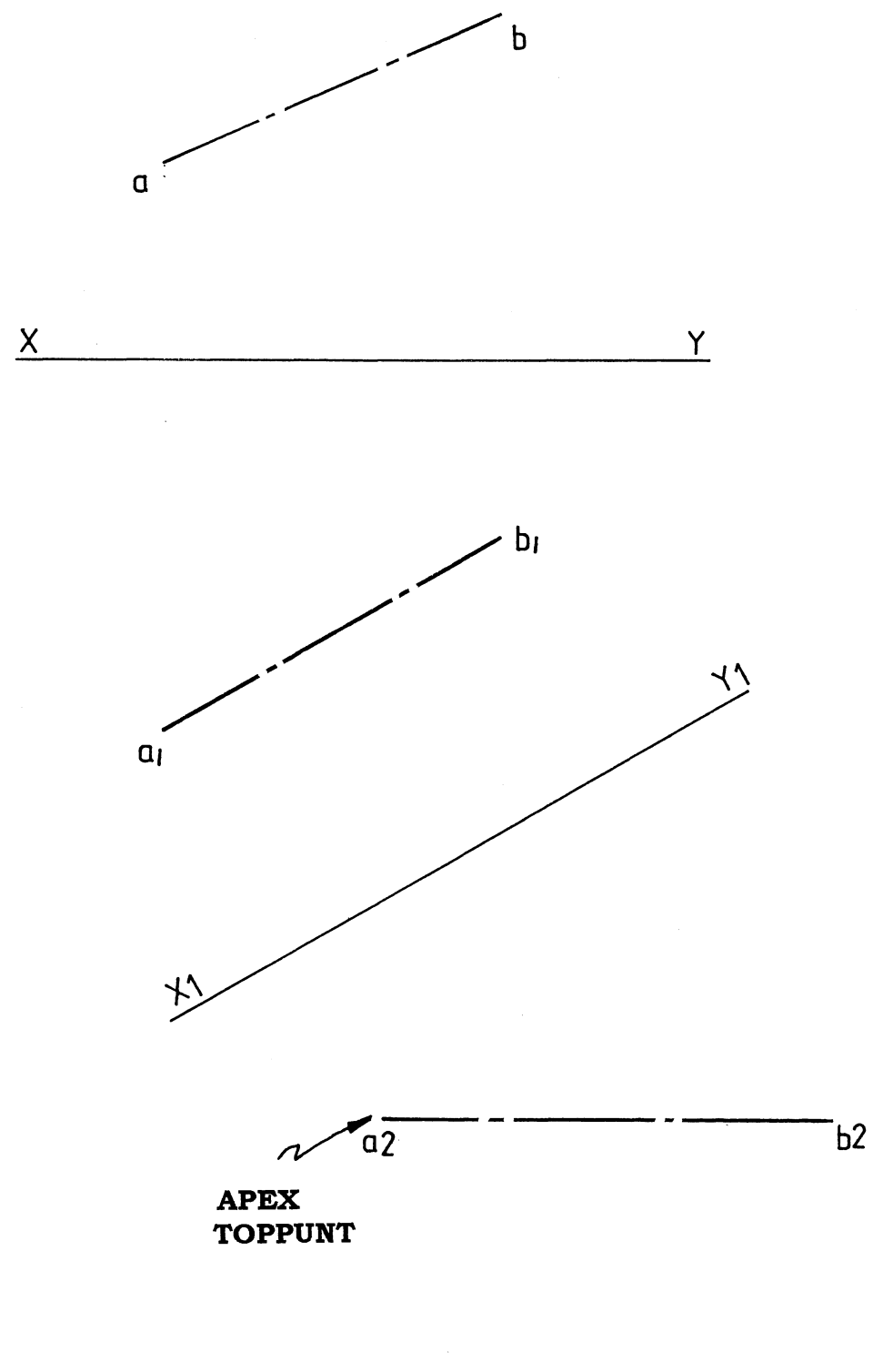


FIG. 5

QUESTION 5

Figure 5 shows the auxiliary view and axis of a hexagonal pyramid. Project:

- 5.1 The top view of the pyramid 15
- 5.2 The front view of the pyramid (Show all hidden detail). 13

Total **28**

VRAAG 5

Figuur 5 toon die hulpaansig, asook die as van 'n seskantige piramide

- Projekteer:
- 5.1 Die boaansig van die piramide 15
 - 5.2 Die vooraansig van die piramide (Toon alle verborge detail). 13

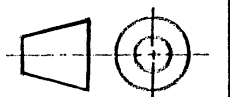
Totaal **28**

EXAMINATION NO.
EKSAMENNOMMER

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QUESTION 5
VRAAG 5

ANSWER SHEET 5
ANTWOORDVEL 5



QUESTION 6

Figure 6 shows the completed front view as well as the incomplete top view of a hexagonal branch pipe penetrating a hexagonal pyramid (**P**).

Project:

- 6.1 The curve of interpenetration in the top view. 10
- 6.2 The surface development of the pyramid (**P**) with **AO** as the centre line of the hole and development. 12

Total 22

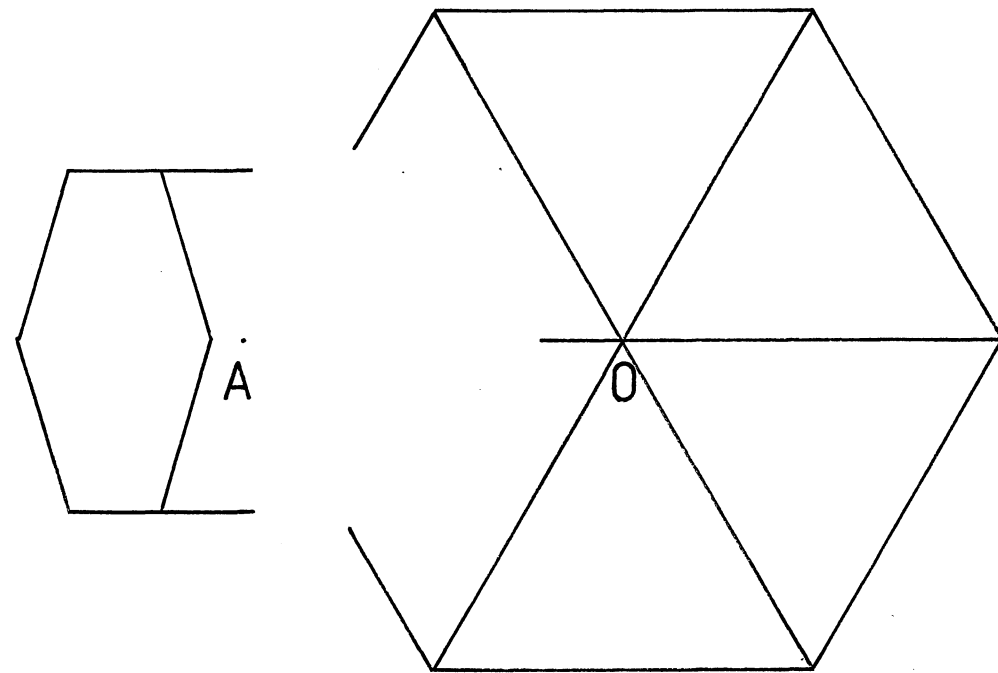
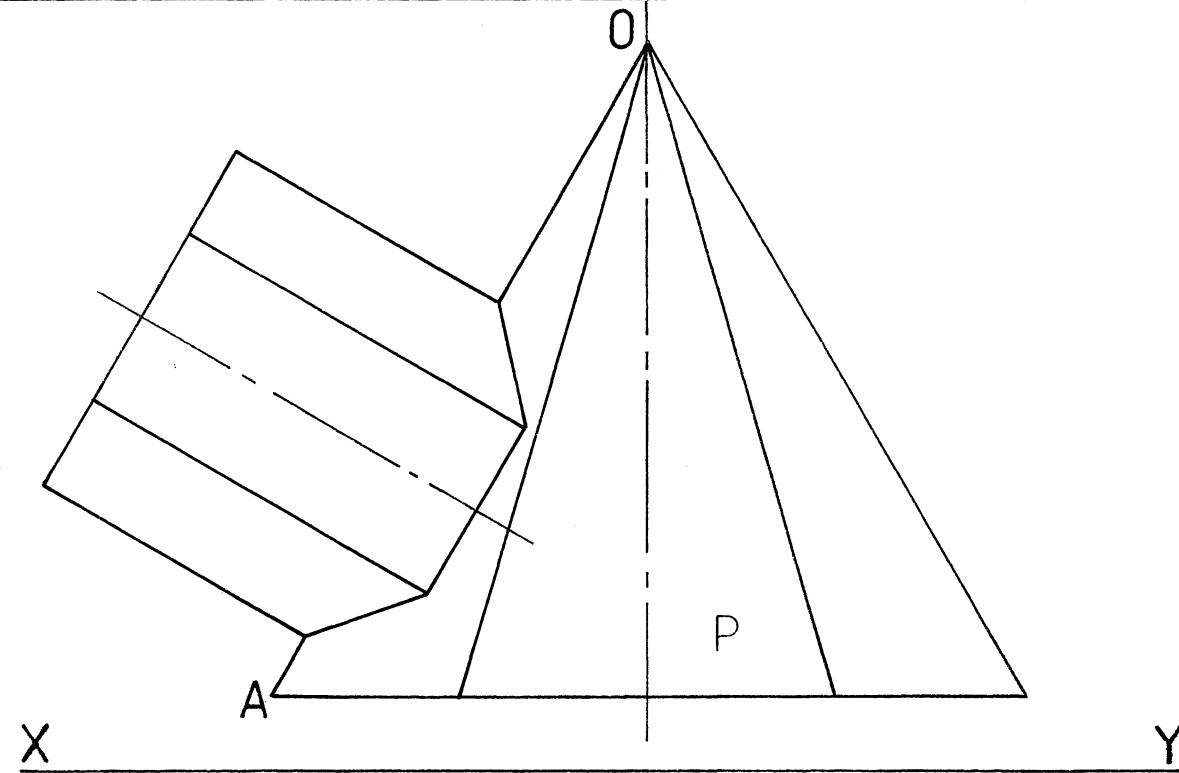
VRAAG 6

Figuur 6 toon die voltooide vooraansig asook die onvoltooide bo-aansig van 'n seskantige takpyp wat 'n seskantige piramide (**P**) deurdring.

Projekteer:

- 6.1 Die deurdringingskromme in die bo-aansig. 10
- 6.2 Die oppervlaksontwikkeling van die piramide (**P**) met **AO** as die middellyn van die gat en die ontwikkeling. 12

Totaal 22



0 ----- A

FIG. 6

EXAMINATION NO.
EKSAMENNOMMER

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QUESTION 6
VRAAG 6

ANSWER SHEET 6
ANTWOORDVEL 6

