GAUTENG DEPARTMENT OF EDUCATION
GAUTENGSE DEPARTEMENT VAN ONDERWYS

SENIOR CERTIFICATE EXAMINATION
SENIORSERTIFIKAAT-EKSAMEN

OCTOBER / NOVEMBER
OKTOBER / NOVEMBER

2006

TECHNICAL DRAWING
TEGNIESE TEKENE

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

SG

711-2/1

Cover + 7 pages
Voorblad + 7 bladsye

GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION

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

TIME: 3 hours
MARKS: 150

GAUTENGSE DEPARTEMENT VAN ONDERWYS
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TEGNIESE TEKENE SG
(Eerste Vraestel: Beskrywende Meetkunde en Lokus)

TYD: 3 uur
PUNTE: 150

INSTRUCTIONS:

1) Answer **ALL** questions on ANSWER SHEETS 711-2/1(U).
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(U).
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.

EXAMINATION NO.
EKSAMENNOMMER

Vraag / Question	Totaal/Total		
1	**25**		
2	**23**		
3	**31**		
4	**23**		
5	**22**		
6	**26**		
Totaal / Total	**150**		

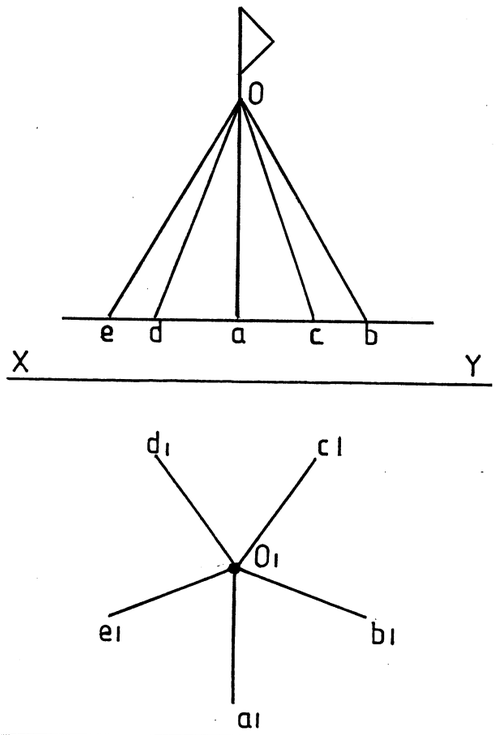


FIG.1.1

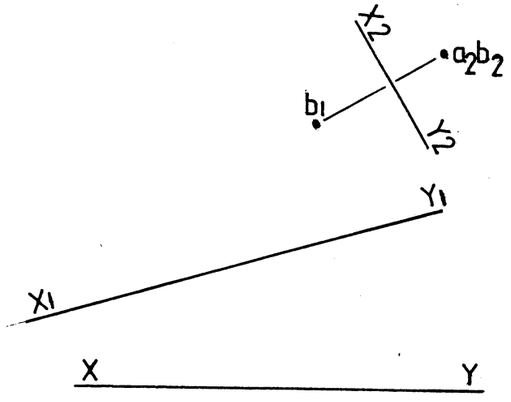


FIG.1.2

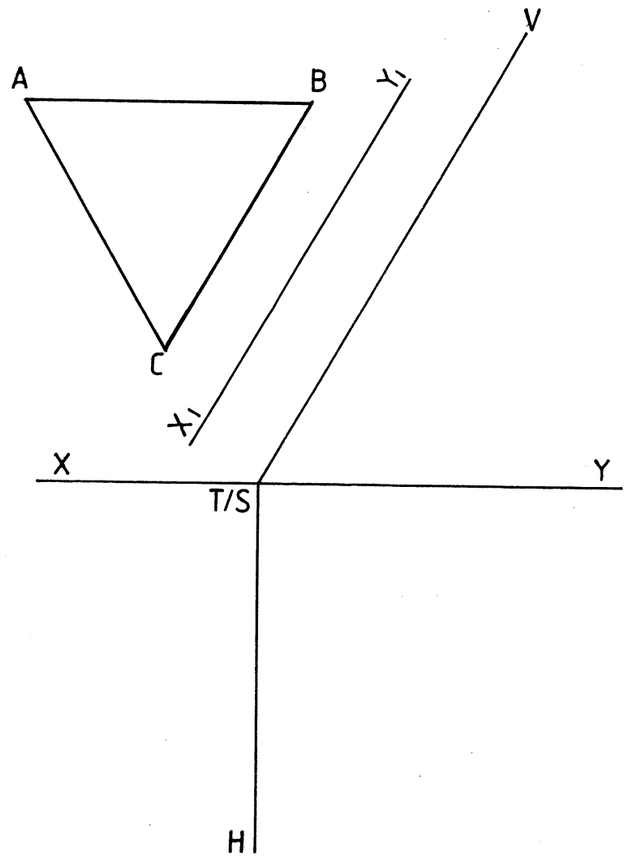


FIG.1.3

QUESTION 1

Figure 1.1 shows the front and top view of a flag pole as well as its supporting wires. Make use of the given information and determine the following: 1.1 The true length of support wires **AO** and **DO**.	10	
Figure 1.2 shows a point view and a point **B** of the line segment **AB**. The groundlines **X-Y** and **X2-Y2** are also shown. Determine: 1.2.1 The front view of line segment **AB** 1.2.2 The top view of line segment **AB** if the true length of the line segment **AB** is 40mm .	5 3	
Figure 1.3 shows the traces **VTH** and true shape of plane figure **ABC**. The plane figure lies on the inclined plane. Determine: 1.3.1 The front view of the plane figure 1.3.2 The top view of the plane figure	4 3	
Total	**25**	

VRAAG 1

Figuur 1.1 toon die voor- en boaansig van 'n vlagpaal, asook die ankerdrade. Maak gebruik van die gegewe inligting en bepaal: 1.1 Die ware lengtes van ankerdrade **AO** en **DO**.	10	
Figuur 1.2 toon 'n puntaansig asook punt **B** van lynstuk **AB**. Die grondlyne **X-Y** en **X2-Y2** word ook getoon. Bepaal: 1.2.1 Die vooraansig van die lynstuk **AB** 1.2.2 Die boaansig van die lynstuk **AB,** indien die ware lengte van die lynstuk **AB 40** mm is.	5 3	
Figuur 1.3 toon die snyspore **VSH** en die ware vorm van vlakfiguur **ABC**. Die vlakfiguur lê op die hellende vlak. Bepaal: 1.3.1 Die vooraansig van die vlakfiguur 1.3.2 Die boaansig van die vlakfiguur	4 3	
Totaal	**25**	

EXAMINATION NO.
EKSAMENNOMMER

QUESTION 1
VRAAG 1

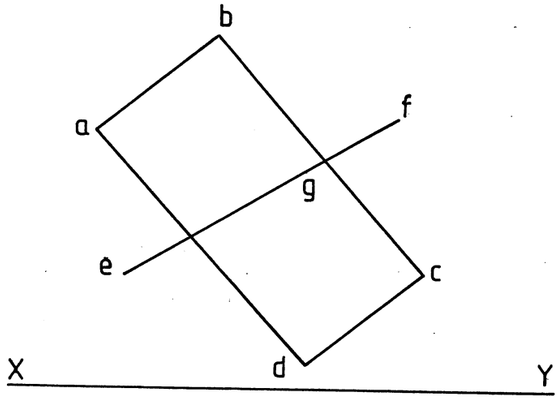
ANSWER SHEET 1
ANTWOORDVEL 1

QUESTION 2

Figure 2.1 shows two penetrating plane figures. Determine: 2.1.1 The true shape of plane figure **EFG** 2.1.2 The completed top view clearly showing the trace (Show all hidden details) 2.2 **Figure 2.2** shows a block . A piece of string is tied at point **A**. Determine the locus of the end of the string if it winds around the block in the direction as indicated by point **P**. Name the locus formed.	5 11 7	
Total	**23**	

VRAAG 2

Figuur 2.1 toon twee vlakfigure wat mekaar deurdring. Bepaal: 2.1.1 Die ware vorm van vlakfiguur EFG 2.1.2 Die voltooide boaansig wat die snyspoor toon. (Toon alle verborge detail) 2.2 **Figuur 2.2** toon 'n blokkie. 'n Stukkie tou is by punt **A** vasgemaak. Bepaal die lokus van die eindpunt van die tou, indien dit om die blokkie vasgedraai word in die rigting aangedui met pyltjie **P**. Benoem die lokus wat gevorm word.	5 11 7	
Totaal	**23**	



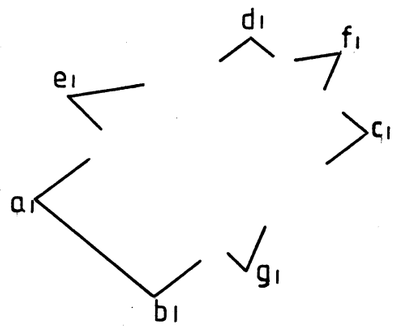


FIG. 2.1

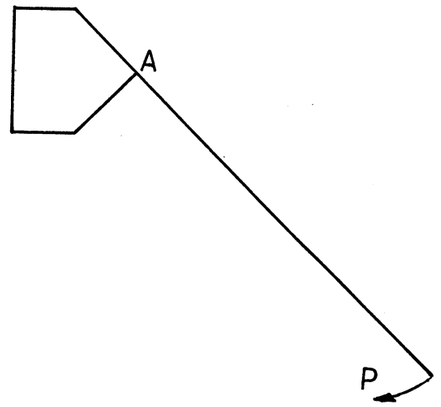


FIG. 2.2

EXAMINATION NO.
EKSAMENNOMMER

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. Determine: 3.1 The locus of point **P** if the disc rolls for one revolution from point **A** to point **C**. 3.2 The locus of point **P** if the disc rolls in the direction of **D** for half a revolution. (Show all calculations).	20 11	
Total	**31**	

VRAAG 3

Figuur 3 toon ´n skyf asook die baan waarop dit rol. Bepaal: 3.1 Die lokus van punt **P** as die skyf vir een omwenteling rol vanaf punt **A** tot by punt **C**. 3.2 Die lokus van punt **P** as die skyf vir ’n halwe omwenteling in die rigting van **D** rol. (Toon alle berekenings).	20 11	
Totaal	**31**	

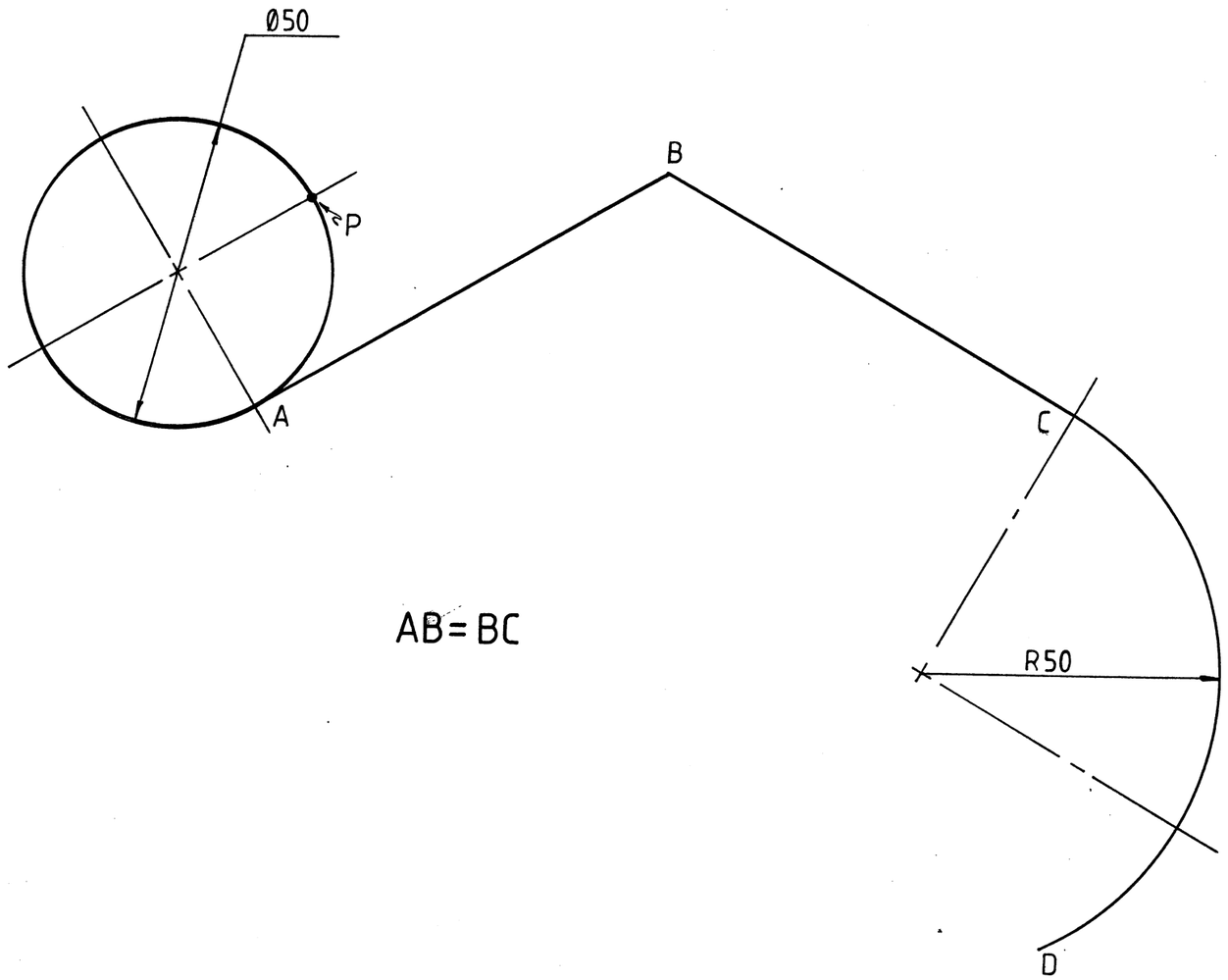


FIG.3

EXAMINATION NO.
EKSAMENNOMMER

QUESTION 3
VRAAG 3

ANSWER SHEET 3
ANTWOORDVEL 3

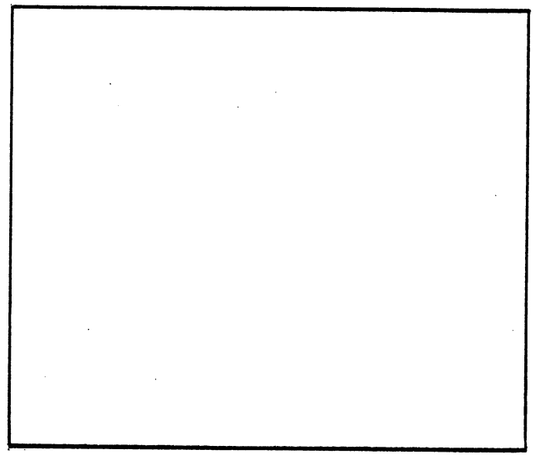


FIG. 4

QUESTION 4

A disc cam imparts the following reciprocating motion at constant velocity to a knife-edged follower: 4.1 A rise of 72 mm during the first 75° of rotation 4.2 Dwell for the next 60° 4.3 A drop of 50 mm during the next 60° of cam rotation 4.4 A rise of 10 mm during the next 90° of cam rotation 4.5 A drop to minimum displacement during the remaining period of rotation The cam rotates clockwise. Make use of the information given in **Figure 4** and construct the cam profile. Indicate the direction of rotation by means of an arrow.	23	
Total	**23**	

VRAAG 4

'n Nokskyf dra die volgende wederkerige beweging teen 'n konstante snelheid oor aan 'n wigvormige nokvolger : 4.1 'n Styging van 72 mm gedurende die eerste 75° van nokrotasie, 4.2 Rus vir die volgende 60° van nokrotasie 4.3 'n Daling van 50 mm gedurende die volgende 60° van rotasie, 4.4 'n Styging van 10 mm gedurende die volgende 90° van rotasie 4.5 'n Daling na minimum verplasing gedurende die oorblywende periode van rotasie. Die nok roteer kloksgewys. Maak gebruik van die gegewe informasie in **Figuur 4** en konstrueer die nokprofiel. Dui die draairigting aan met behulp van 'n pyltjie.	23	
Totaal	**23**	

EXAMINATION NO.
EKSAMENNOMMER

QUESTION 4
VRAAG 4

ANSWER SHEET 4
ANTWOORDVEL 4

QUESTION 5

Figure 5 shows the incomplete front and top views as well as the auxiliary view of a square prism penetrating a hexagonal pyramid. Project: 5.1 The curve of interpenetration in the front view. 5.2 The curve of interpenetration in the top view. (Show all hidden detail.)	 5 17	
Total	**22**	

VRAAG 5

Figuur 5 toon die onvoltooide vooraansig en boaansigte asook die hulpaansig van ´n vierkantige prisma wat ´n seskantige piramide deurdring. Projekteer: 5.1 Die deurdringingskromme in die vooraansig. 5.2 Die deurdringingskromme in die boaansig. (Toon alle verborge detail).	 5 17	
Totaal	**22**	

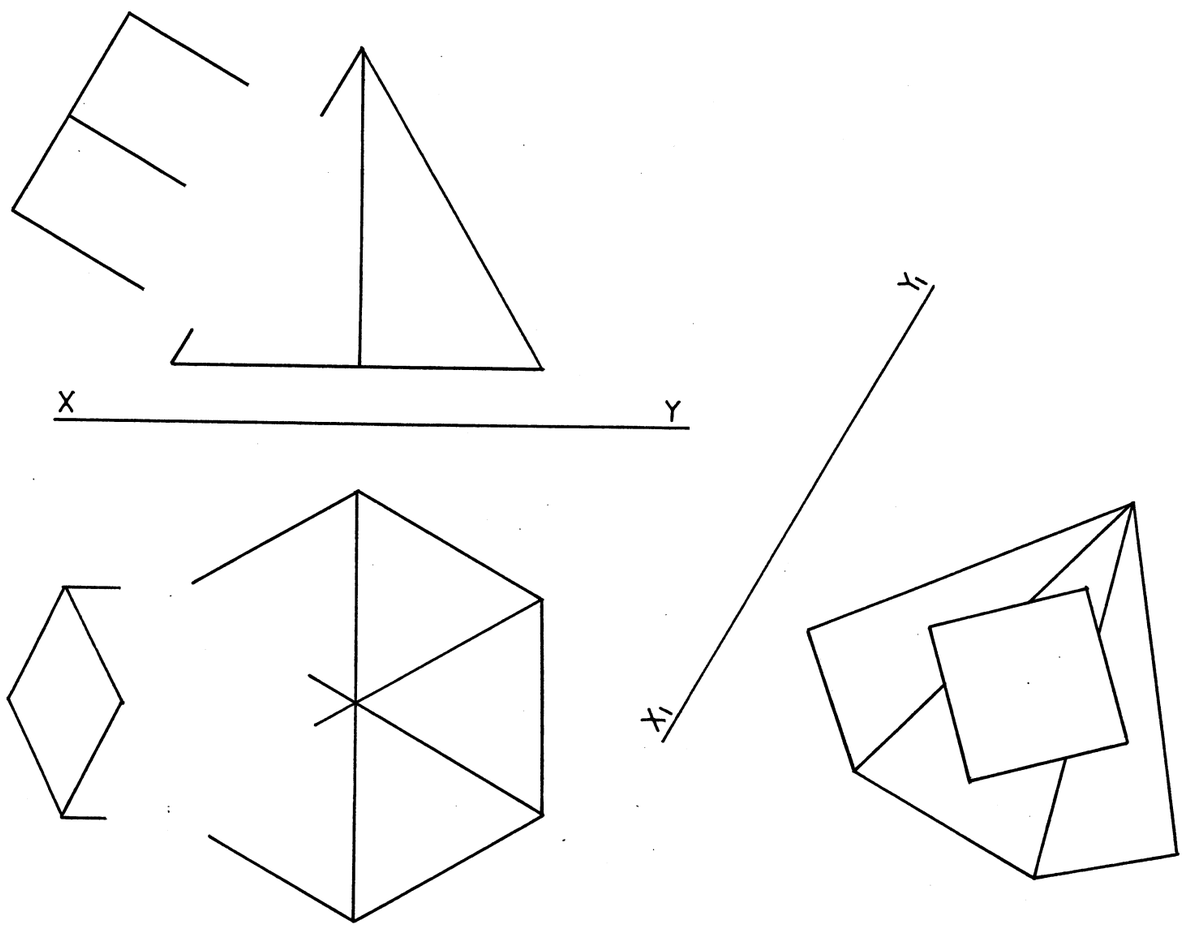


FIG. 5

EXAMINATION NO.
EKSAMENNOMMER

QUESTION 5
VRAAG 5

ANSWER SHEET 5
ANTWOORDVEL 5

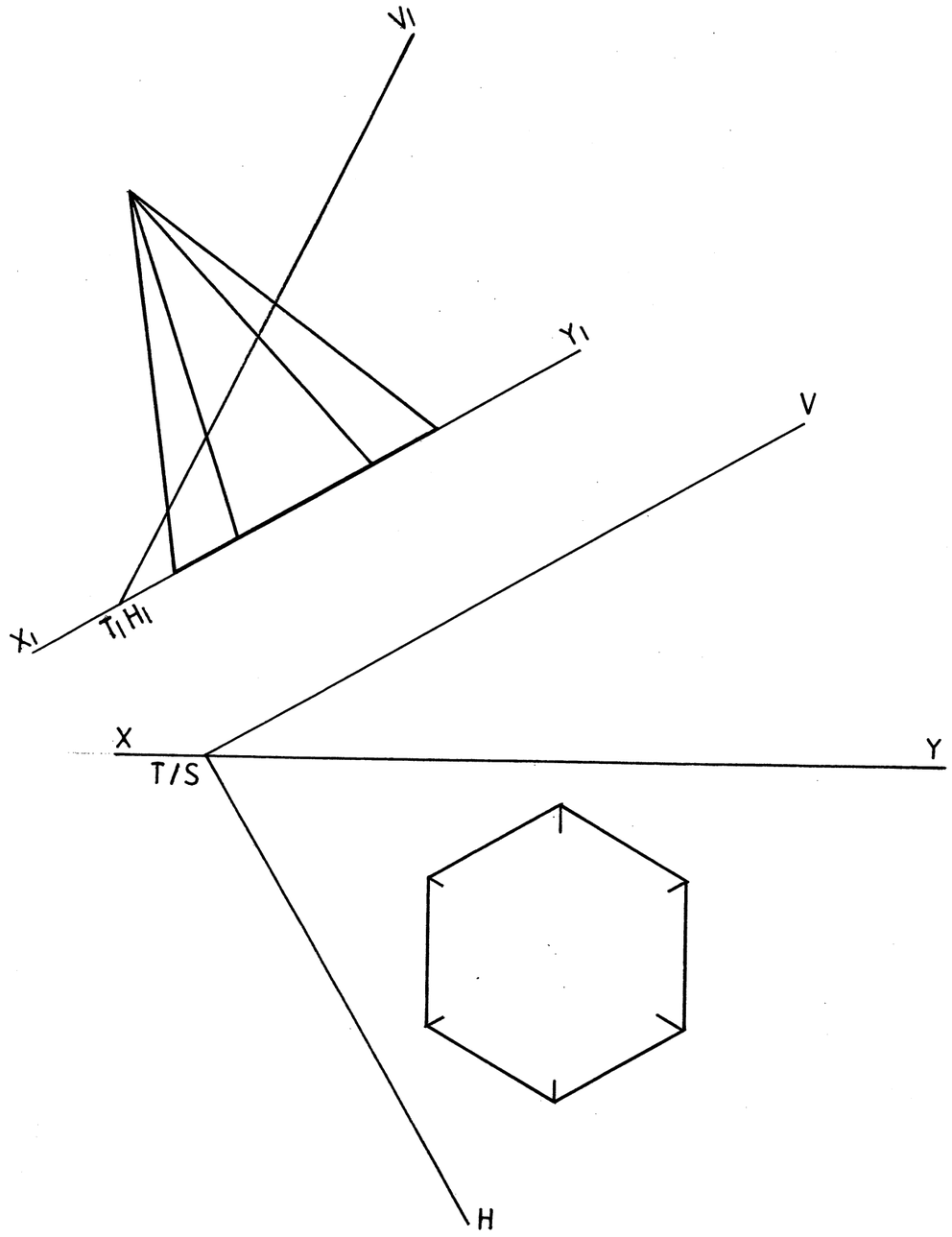


FIG.6

QUESTION 6

Figure 6 shows the traces **VTH** and incompleted top view of a hexagonal pyramid. The auxilliary view of the pyramid and inclined plane is also shown.		
Project:		
6.1 The sectional top view on cutting plane **VTH**.	8	
6.2 The sectional front view on cutting plane **VTH**.	11	
6.3 The true shape of the section on the cutting plane.	7	
Total	**26**	

VRAAG 6

Figuur 6 toon die spore **VSH** en onvoltooide boaansig van 'n seskantige piramide. Die hulpaansig en hellende vlak van die piramide word ook getoon.		
Projekteer:	8	
6.1 Die deursnee boaansig op snyvlak **VSH**.		
6.2 Die deursnee vooraansig op snyvlak **VSH**.	11	
6.3 Die ware vorm van die snit op die snyvlak	7	
Totaal	**26**	

EXAMINATION NO.
EKSAMENNOMMER

QUESTION 6
VRAAG 6

ANSWER SHEET 6
ANTWOORDVEL 6

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