

KRAM



education
 Department of
 Education
 FREE STATE PROVINCE

**PROVINSIALE VRAESTEL
 PROVINCIAL PAPER**

**GRAAD 10
 GRADE 10**

**INGENIEURSGRAFIKA EN -ONTWERP
 ENGINEERING GRAPHICS AND DESIGN**

JUNIE 2018 / JUNE 2018

PUNTE / MARKS: 100
 TYD: 3 UUR / TIME: 3 HOURS

Hierdie vraestel bestaan uit 9 bladsye. / This paper consists of 9 pages.

INSTRUKSIES EN INLIGTING

- Hierdie vraestel bestaan uit VIER vrae
- Beantwoord al die vrae.
- ALLE tekeninge is in derdehoekse ortografiese projeksie, tensy anders aangedui.
- ALLE tekeninge moet volgens skaal 1:1 geteken word, tensy anders aangedui.
- AL die vrae moet, soos voorgeskryf, op die DIAGRAMVELLE beantwoord word.
- AL die bladsye moet weer in nommervolgorde vasgekram word, ongeag of die vraag beantwoord is, of nie.
- Tydsbeplanning is noodsaaklik om al die vrae te voltooi.
- Drukskryf jou naam en van asook die graad in die spasie wat voorsien is op elke bladsy.
- ALLE antwoorde moet akkuraat en netjies geteken word.
- ALLE nodige konstruksie- en projeksielyne moet getoon word.
- Beplan elke tekening noukeurig vanaf die beginposisie wat op die diagramvelle aangedui is.
- Enige besonderhede of afmetings wat nie gegee is nie, moet in goeie verhouding beraam word.

INSTRUCTIONS AND INFORMATION

- This question paper consist of FOUR questions.
- Answer ALL the questions.
- ALL drawings are in third-angle orthographic projection, unless stated otherwise.
- ALL drawings must be drawn to scale 1:1, unless stated otherwise.
- ALL questions must be answered on the DIAGRAM SHEETS, as instructed.
- ALL the pages must be restapled in numerical sequence, irrespective of whether the question was attempted or not.
- Time management is essential in order to complete all the questions.
- Print your name and surname as well as the grade in the space provided on each page.
- ALL answers must be drawn accurately and neatly.
- ALL necessary construction and projection lines must be shown.
- Plan each drawing carefully from the given position, which is indicated on the diagram sheets.
- Any details or dimensions not given must be assumed in good proportion.

SLEGS VIR AMPTELIKE GEBRUIK/ FOR OFFICIAL USE ONLY								
VRAAG/ QUESTION	PUNTE BEHAAL/ MARKS OBTAINED			½	GEMODEREER/ MODERATED			½
1								
2								
3								
4								
TOTAAL/ TOTAL								
	1	7	5		1	7	5	

FINALE VERWERKTE PUNT/ FINAL CONVERTED MARK	NAGESIEN DEUR/ CHECKED BY
100	

NAAM & VAN NAME & SURNAME		GRAAD/ GRADE	10	1
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VRAAG 1: ANALITIES (MEGANIES)

Gegee:

Die werkstekening van 'n as-ondersteuner in derdehoekse-ortografiese-projeksie met 'n titelblok op diagramvel 1.
 'n Tabel met vrae op diagramvel 2 en dieselfde as-ondersteuner, maar met aansig 2 reeds in snit geteken.

Instruksies:

Skryf die korrekte antwoorde netjies in drukskrif met 'n potlood in die ooreenstemmende antwoordkolom op diagramvel 2.
 Let wel. Al die vrae verwys na die bygaande tekening en die titelblok op diagramvel 1. **[32]**

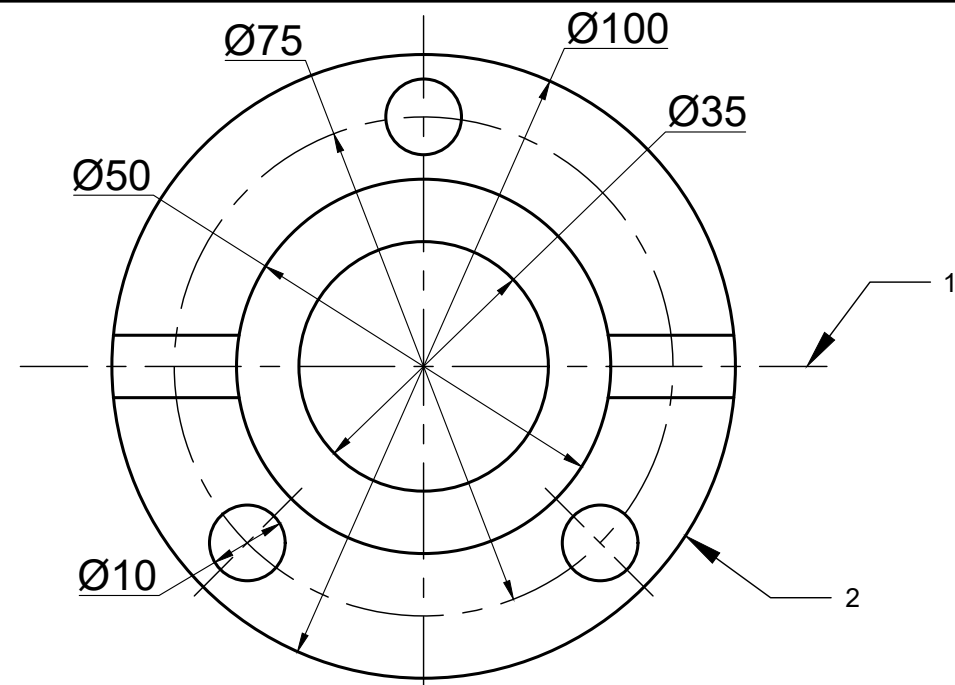
QUESTION 1: ANALYTICAL (MECHANICAL)

Given:

The working drawings of a shaft supporter in third angle orthographic projection with a title block on diagram sheet 1.
 A table with questions on diagram sheet 2 as well as the same shaft supported but with view 2 already sectioned.

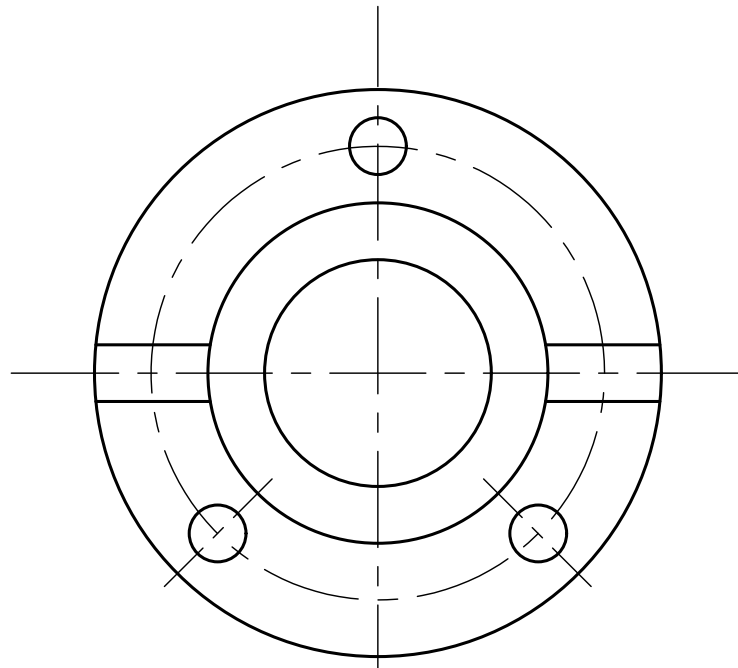
Instructions:

With a pencil, complete the table by neatly printing the correct answers in the corresponding answer column on diagram sheet 2.
 Note: All the questions refer to the accompanying drawing and the title block on diagram sheet 1. **[32]**

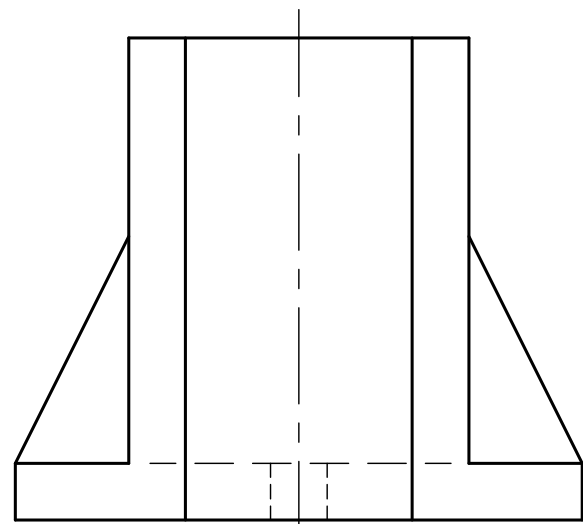


ARSERINGSBESONDERHEDE/ HATCHING DETAIL	2018/02/15	JOHAN	1					
BESKRYWING VAN HERSIENING/ DESCRIPTION OF REVISION:	DATUM/DATE:	VERANDER DEUR/ CHANGED BY:	NOMMER/NUMBER:					
TITEL/TITLE: ASONDERSTEUNER/ SHAFT SUPPORTER	MATERIAAL/ MATERIAL: GIETYSER/ CAST IRON	AANTAL BENODIG / NUMBER REQUIRED: 50	SKAAL/SCALE: 1:2	TEKENPROGRAM/ DRAWING PROGRAM: AUTOCAD 2018	NOTAS/NOTES: ALLE AFMETINGS IS IN MILLIMETERS. ALLE AFMETINGS WAT NIE GEGEE IS NIE, MOET IN GOEIE VERHOUDING BEPAAAL WORD. ALL THE DIMENSIONS ARE IN MILLIMETERS. ALL THE DIMENSIONS THAT IS NOT GIVEN MUST BE DETERMINED IN GOOD RATIO.			
P & C STAALWERKE/ STEELWORKS 23 BOSHOF STREET REDDERSBURG www.pcsww@yahoo.com SEL./CELL:060 824 0023	GETEKEN DEUR/ DRAWN BY: SEPO	NAGESIEN DEUR/ CHECKED BY: JOHN	GOEDGEKEUR DEUR/ APPROVED BY: IZAK	TEKEN LÊER No: FILE DRAWING No.: PC-20180220				
	DATUM/DATE: 12/02/2018	DATUM/DATE: 26/02/2018	DATUM/DATE: 02/03/2018	BEHANDELING/TREATMENT: VERHARDING/ HARDENING				
DIAGRAMVEL 1 DIAGRAM SHEET 1	INGENIEURSGRAFIKA EN -ONTWERP ENGINEERING GRAPHICS AND DESIGN	VS DvO / JUNIE 2018 FS DoE / JUNE 2018	NAAM & VAN NAME & SURNAME		GRAAD/ GRADE	10	2	

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AANSIG 1 / VIEW 1



AANSIG 2 / VIEW 2

ANTWOORD 19/ ANSWER 19

VRAE / QUESTIONS		ANTWOORDE / ANSWERS		
1	Wat is die titel van die tekening? What is the title of the drawing?	1		
2	Wat is die skaal van die tekening? What is the scale of the drawing?	1		
3	Wat is die naam van die vervaardigingsmaatskappy? What is die name of the manufacturing firm?	1		
4	Hoeveel eenhede moet vervaardig word? How many units must be manufactured?	1		
5	Wie het die tekening goedgekeur? Who approved the drawing?	1		
6	Wat was die rede vir hersiening? What was the reason for revision?	1		
7	Watter soort behandeling moet die onderdeel ondergaan? What tipe of treatment must be done on the unit?	1		
8	Watter materiaal word gebruik om die onderdeel te vervaardig? Which material is used to manufacture the unit?	1		
9	Watter tekenmetode is gebruik? Which drawing method has been used?	1		
10	Watter afmetingseenheid word gebruik in die tekening? Which measuring unit is used in the drawing?	1		
11	Benoem aansig 1. Name view 1.	1		
12	Benoem die lyntipe by 1 (sien diagramvel 1). Name the line type at 1 (see diagram sheet 1).	1		
13	Benoem die lynkwaliteit van die lyn genommer 2 (sien diagramvel 1). Name the line quality of the line numbered 2 (see diagram sheet 1).	1		
14	Benoem die verskynsel by 3 (sien diagramvel 1). Name the phenomenon at 3 (see diagram sheet 1).	1		
15	Benoem die diameter van die gat vir die as. Let wel: Die as is nie getoon nie. Name the diameter for the hole of the shaft. Note: The shaft is not shown.	2		
16	Bepaal die volgende afmetings by... Determine the following dimensions at...	A:	B:	C: D:
17	Op diagramvel 2, teken die snitlyn A-A indien aansig 2 deur die senter van die ondersteuner gesny moet word. On diagram sheet 2, draw in the section line A-A should view 2 be sectioned through the center of the shaft supporter.	3		
18	Op diagramvel 2, toon alle arseringslyne van die snit op aansig 2. On diagram sheet 2, draw all the hatching lines of the sectioned part on view 2.	4		
19	Teken, in netjiese vryhand, die projeksiesimbool in die gegewe spasie. Draw, in neat free hand, the projection system symbol in the given space.	5		
20	TOTAAL /TOTAL	32		

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ASSESSERINGSKRITERIA ASSESSMENT CRITERIA		Punte Marks	Mod.
1	ELLIPS	17	
2	SIRKELS / CIRCLES (14/2)	7	
3	LYNE / LINES	10	
4	RAAKBOOG / TANGENT ARC	9	
5	SESKANT / HEXAGON	8	
6	MAATSKRYWINGS DIMENSIONING	5	
7	PLASING / PLACING	2	
TOTAAL / TOTAL		58	

DIAGRAMVEL 4
DIAGRAM SHEET 4

INGENIEURSGRAFIKA EN -ONTWERP
ENGINEERING GRAPHICS AND DESIGN

VS DvO / JUNIE 2018
FS DoE / JUNE 2018

NAAM & VAN
NAME & SURNAME

GRAAD/
GRADE

10

5



VRAAG 3: ISOMETRIESE TEKENING

Gegee:

Die vooraansig, linkeraansig en bo-aansig van 'n gietstuk in derdehoekse ortografiese projeksie. Die beginpunt S op diagramvel 6.

Instruksies:

Met punt S as die laagste punt van die tekening, teken volgens skaal 1:1 'n isometriese tekening van die gietstuk.

- Geen verborge detail word verlang nie.
- Toon ALLE nodige konstruksies.

QUESTION 3: ISOMETRICAL DRAWING

Given

The front view, left view and top view of a casting in third-angle-orthographic-projection. The starting point S on diagram sheet 6.

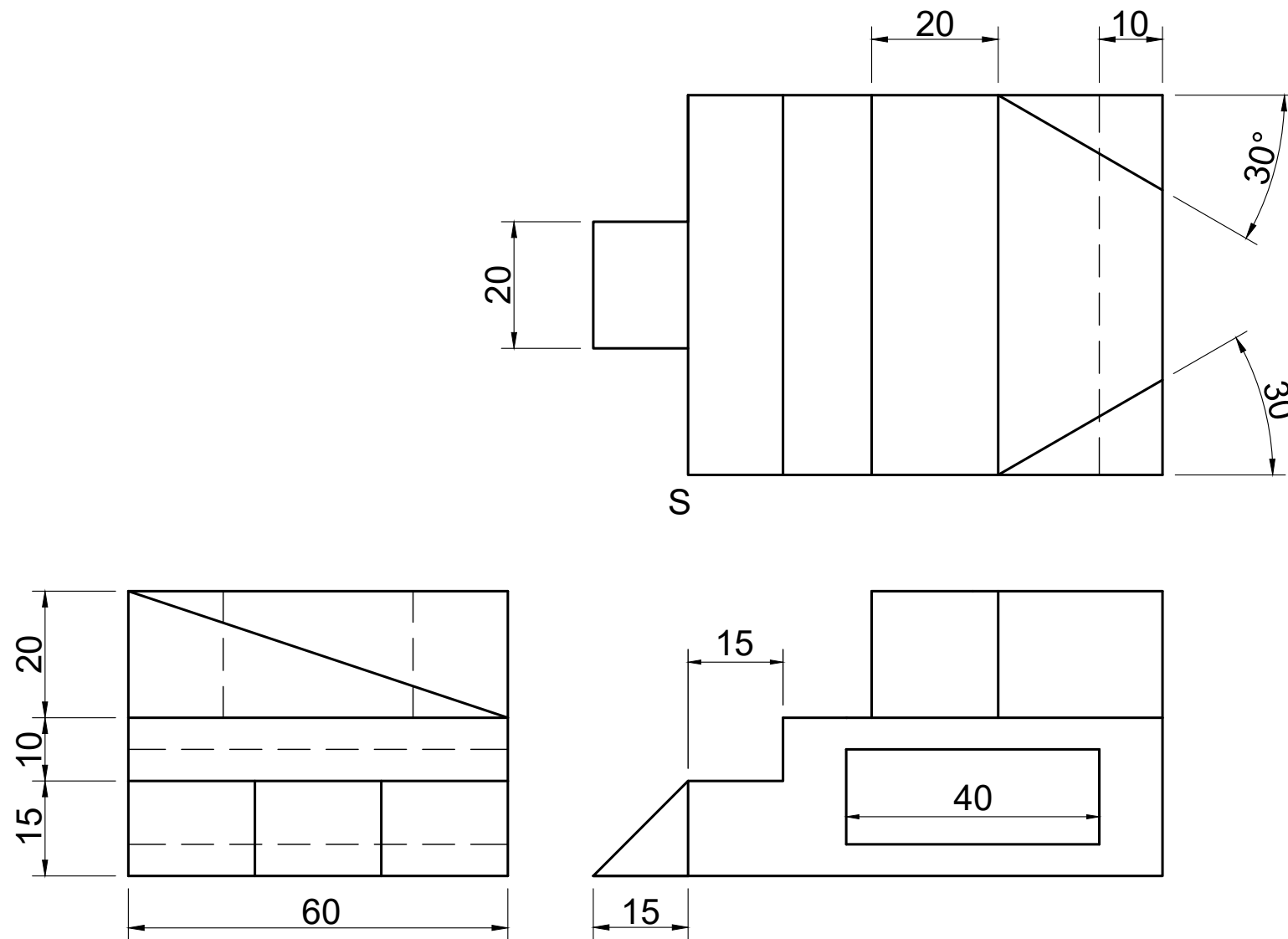
Instructions:

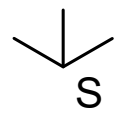
With point S as the lowest point and to scale 1:1, draw an isometric drawing of the casting.

- No hidden detail is required.
- Show ALL necessary construction.

[45]

[45]





ASSESSERINGSKRITERIA / ASSESSMENT CRITERIA			Punt Mark	Mod.
1	ISOMETRIESE LYNE / ISOMETRIC LINES	30		
2	NIE-ISOMETRIESE LYNE / NON ISOMETRIC LINES	4		
3	SESKANT & HULPAANSIG / HEXAGON AND AUXILIARY VIEW	10		
4	PLASING / PLACEMENT	1		
TOTAAL / TOTAL		45		



VRAAG 4: MEGANIESE TEKENING

Gegee:

Diagramvel 7 toon die volgende:

- 'n Isometriese aansig van 'n gietstuk.
- Die vooraansig, regteraansig en bo-aansig van 'n gietstuk in derdehoekse ortografiese projeksie.
- Die beginpunt T.

Instruksies:

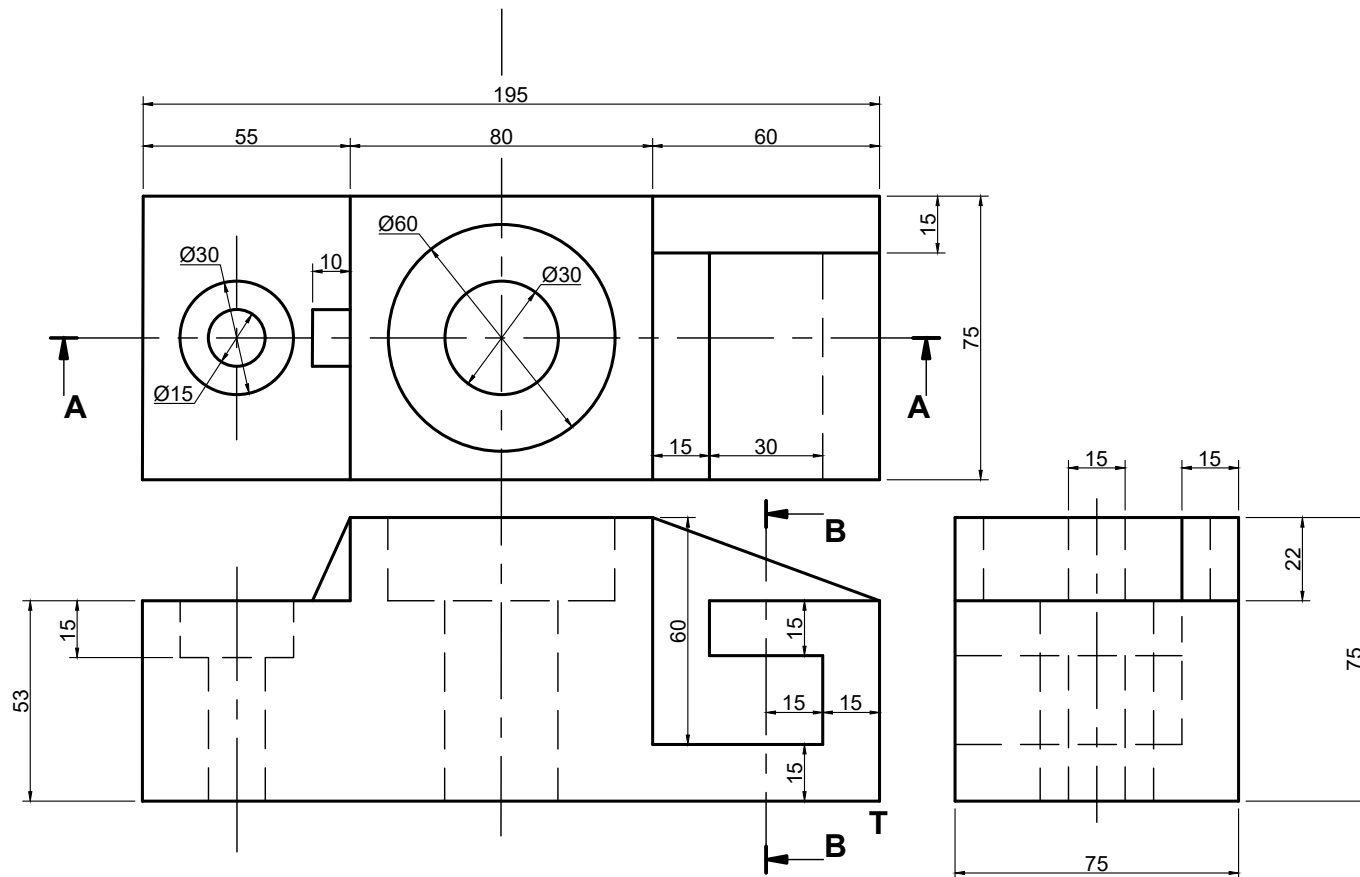
Teken volgens skaal 1:1 en in derdehoekse ortografiese projeksie die volgende aansigte van die gietstuk op diagramvel 8:

1. Die deursnee-vooraansig volgens snyvlak A-A.
2. Die deursnee-regteraansig volgens snyvlak B-B.
3. Die bo-aansig.

Let wel:

- Toon verborge besonderhede slegs in die bo-aansig.
- Voeg die titel en skaal van die tekening in die gegewe spasie in.
- Teken die korrekte projeksiesimbool in die gegewe spasie.

[40]



QUESTION 4: MECHANICAL DRAWING

Given:

Diagram sheet 7 shows the following:

- An isometric view of the casting.
- The front view, right view and top view of a casting in third-angle-orthographic-projection.
- The starting point T.

Instructions:

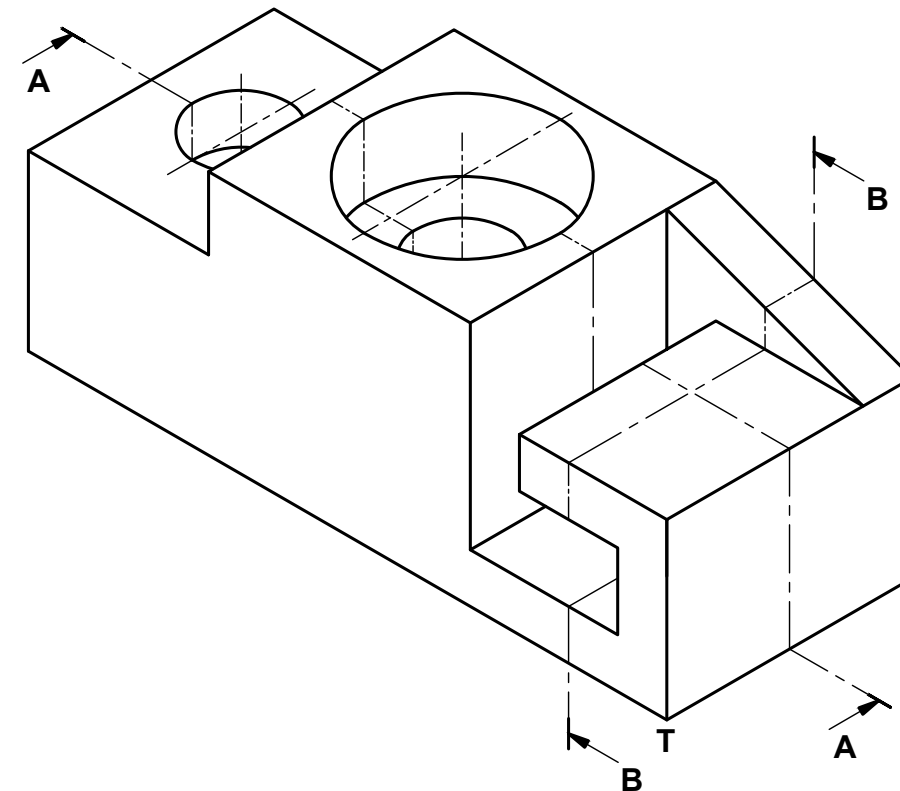
Draw to scale 1:1 and in third-angle-orthographic projection the following views of the casting on diagram sheet 8:

1. A section front view on cutting plane A-A.
2. A section right view on cutting plane B-B.
3. The top view.

Note:

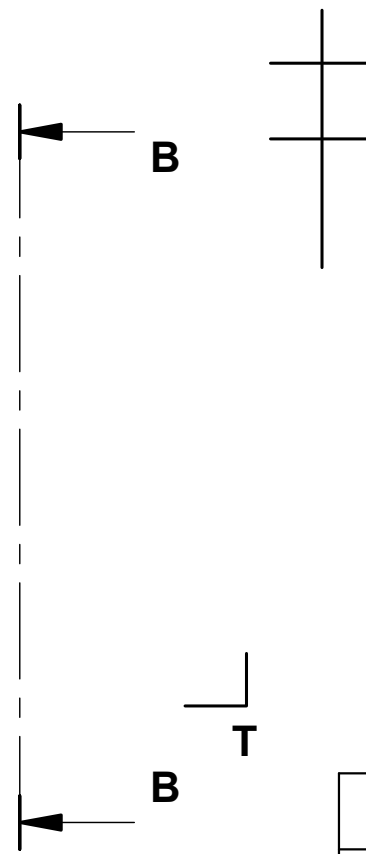
- Show hidden detail only in the top view.
- Insert the title and scale of the drawing in the given space.
- Draw in the correct symbol of projection in the given space.

[40]





TITEL & SKAAL / TITLE & SCALE
PROJEKSIESIMBOOL / PROJECTION SYMBOL



ASSESSERINGSKRITERIA / ASSESSMENT CRITERIA		Punt Mark	Mod.
1	DEURSNEE-VOORAANSIG / SECTION FRONT VIEW ($\frac{30}{2}$)	15	
2	DEURSNEE-REGTERAANSIG / SECTION RIGHT VIEW ($\frac{14}{2}$)	7	
3	BOAANSIG / TOP VIEW ($\frac{20}{2}$)	10	
4	SNITLYN AA / SECTION LINE AA ($\frac{6}{2}$)	3	
5	TITEL & SKAAL / TITLE & SCALE ($\frac{4}{2}$)	2	
6	SIMBOOL / SYMBOL ($\frac{6}{2}$)	3	
TOTAL / TOTAAL		40	