



education

Department of Education
FREE STATE PROVINCE

PROVINCIAL PAPER

GRADE 11

ENGINEERING GRAPHICS AND DESIGN P2

JUNE 2018

MARKS: 100
TIME: 3 HOURS

This paper consists of 6 pages.

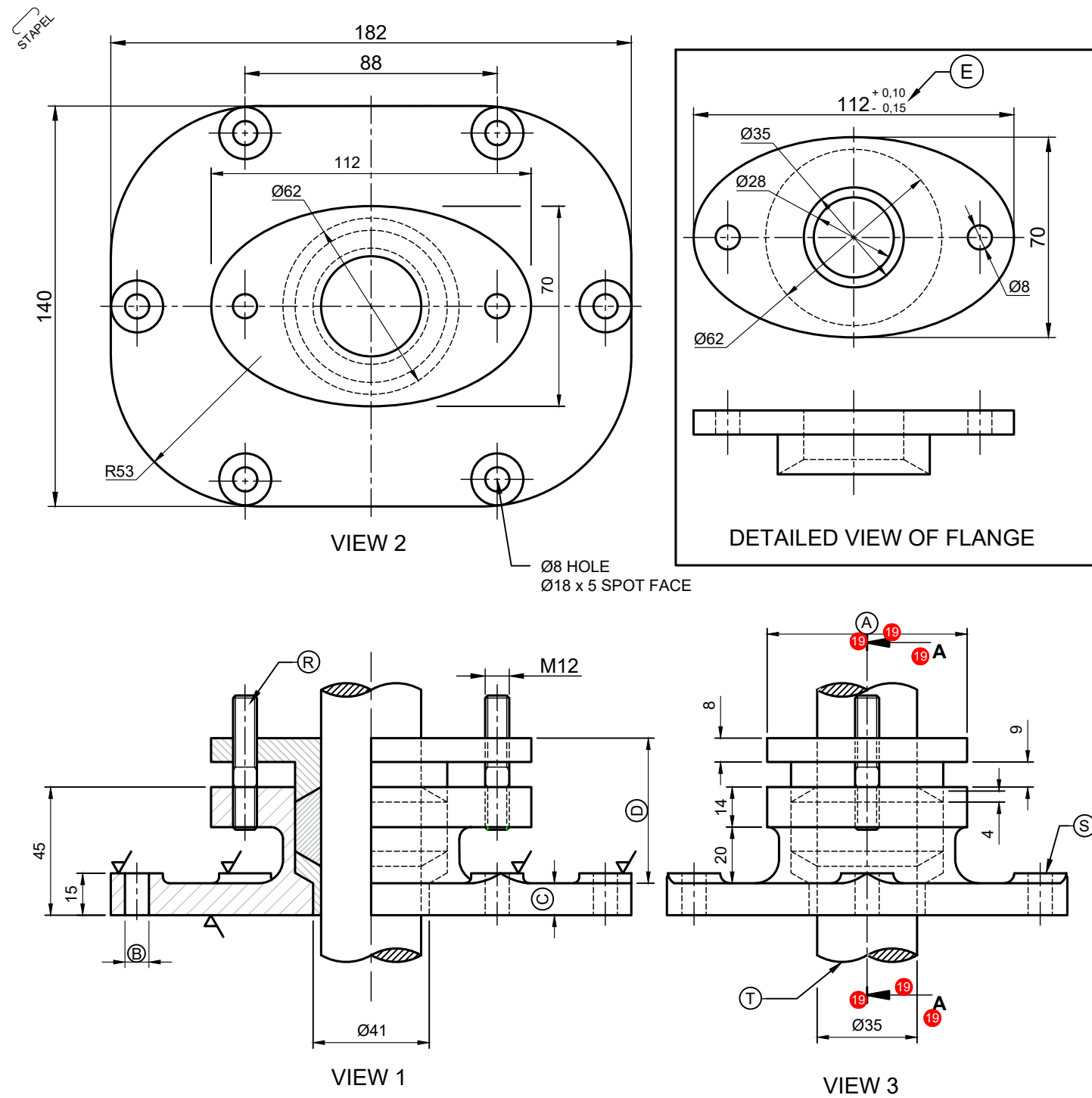
INSTRUCTIONS AND INFORMATION

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

FOR OFFICIAL USE ONLY								
QUESTION	MARKS OBTAINED			½	MODERATED			½
1								
2								
3								
4								
TOTAL								
	2	0	0		2	0	0	

FINAL CONVERTED MARK	CHECKED BY
100	

NAME & SURNAME	MEMORANDUM	GRADE	11	1
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QUESTION 1: ANALYTICAL (MECHANICAL)

Given:

A front view, top view and right view of a box and gland assembly, detailed drawing of the flange, a title block and a table of questions. The drawing has not been prepared to the indicated scale

Instructions:

Complete the table below by neatly answering the question, which all refer to the accompanying drawings and the title block. [26]

QUESTIONS		ANSWERS	
1	On what date was the drawing approved?	17/04/2018	1
2	What is the title of the assembly?	BOX AND GLAND	1
3	What scale is indicated for the drawing?	SCALE 1 : 2	1
4	What material is used to manufacture the bush?	RUBBER	1
5	On what date was the revision done?	03/05/2018	1
6	Why was the revision done?	INSERT SPOT FACE	1
7	What is the drawing number?	JB040118	1
8	What would VIEW 3 be called?	RIGHT VIEW	1
9	What type of section is shown in VIEW 1?	HALF SECTION	1
10	What part is used to protect the flange surface when the nut is being tightened?	WASHER	1
11	Name the part at R.	STUD	1
12	Name the feature at S.	SPOTFACE	1
13	Name the feature at T.	S-BREAK	1
14	Give complete dimensions at:	A: 70 mm B: Ø8 mm	2
15	Determine the complete dimensions at:	C: 45 - 14 - 20 = 11 mm D: 51 mm	4
16	Insert the cutting plane on VIEW 3 and label it A-A.		3
17	In the space provided below, draw, in neat freehand the T.A.O.P. symbol.		4
TOTAL			26

ALL DIMENSIONS ARE IN MILLIMETERS	SCALE : 1 : 2
DRAWING PROGRAM: AUTOCAD 2018	FINISH: POLISHED
FILE NAME: JBT22018	QUANTITY: 325 UNITS
DRAWING No. JB040118	MACHINING: MILLING

UNLESS OTHERWISE SPECIFIED, ALL TOLERANCE ON DIMENSIONS ARE ±0,15. ALL UNSPECIFIED RAIDII ARE R3.

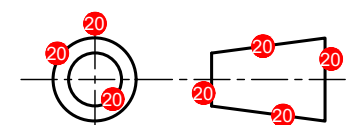
ZANBIE ENGINEERING	24 FABRICIA ROAD INDUSTRIAL BLOEMFONTEIN 8001	
	BOX AND GLAND	
	TITLE	

REVISIONS	DATE
2.	
1. INSERT SPOT FACE	05/03/2018
DRAWN: DIRK	30/02/2018
CHECKED: JAN	10/03/2018
APPROVED: PIETER	17/04/2018

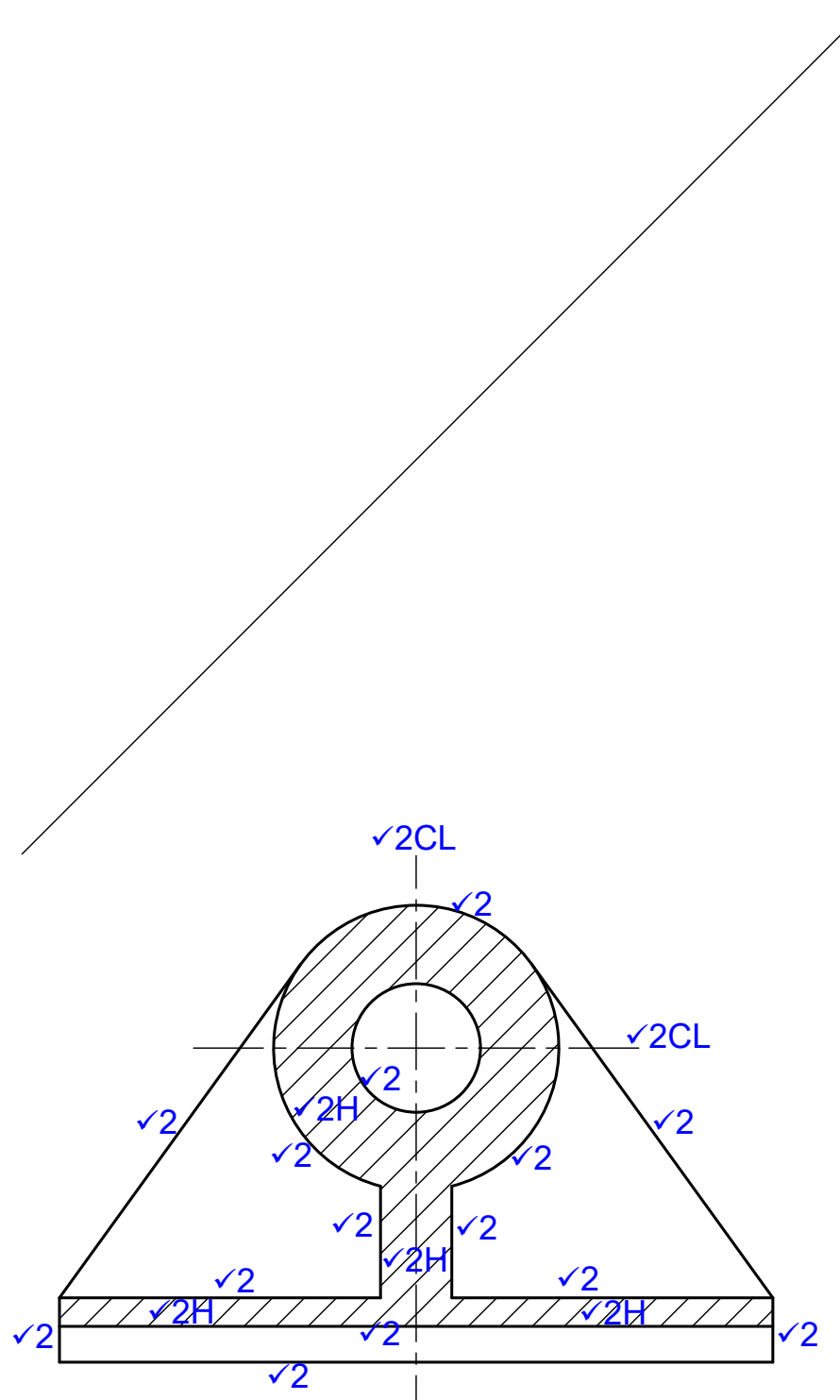
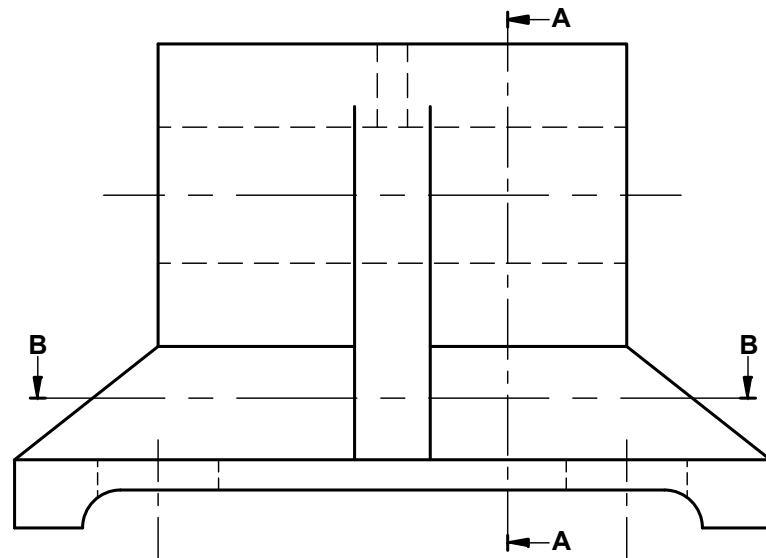
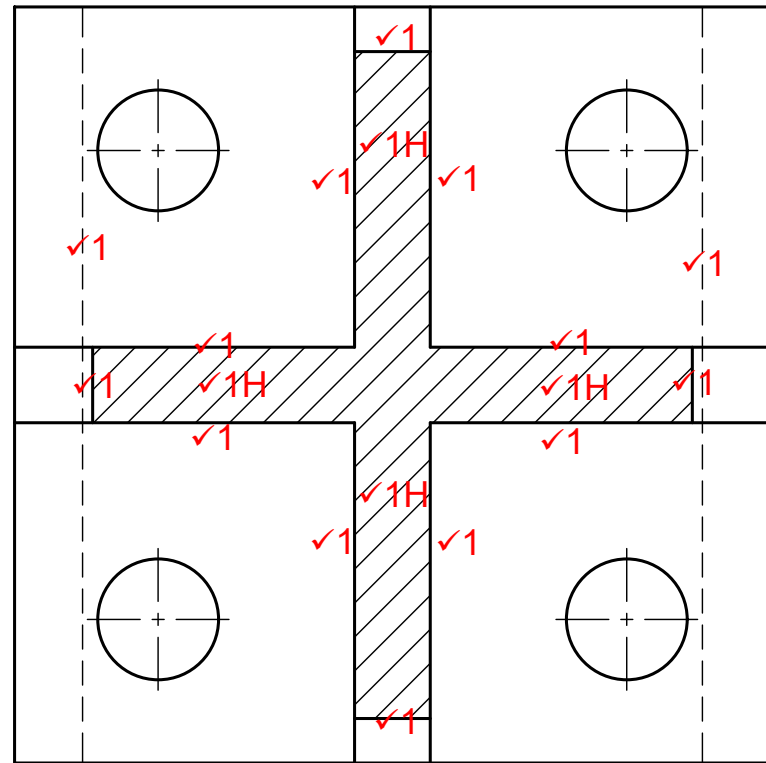
PARTS LIST				
	PART	MATERIAL	QUANTITY	
1	BASE	CAST IRON	1	
2	FLANGE	MILD STEEL	1	
3	STUD	MILD STEEL	2	
4	SHAFT	HARDEN STEEL	1	
5	BUSH	RUBBER	1	
6	WASHER	MILD STEEL	2	
7	NUT	MILD STEEL	2	

ANSWER 20

20 FREEHAND



STAPEL



QUESTION 2: MECHANICAL SECTION

Given:

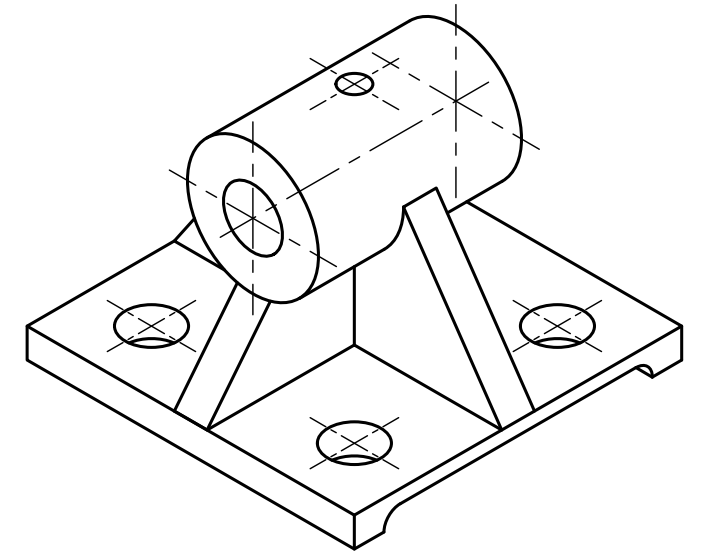
- The incomplete top view.
- The complete front view.
- The complete isometric view.

Instructions:

Complete, according to scale 1:1, the following:

- 2.1 A complete sectional top view according to cutting plane B-B. Hidden detail is required.
- 2.2 A sectional right view according to cutting plane A-A.

[38]



ASSESSMENT CRITERIA				
1	TOP VIEW	✓1	18	
2	RIGHT VIEW	✓2	20	
TOTAL			38	

STAPEL

QUESTION 3: ISOMETRIC DRAWING

Given:

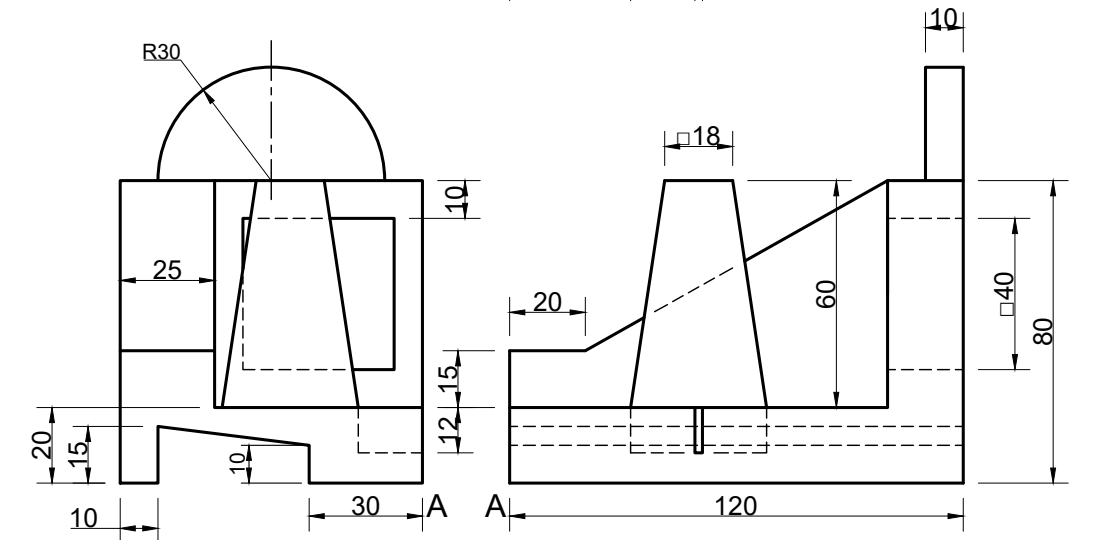
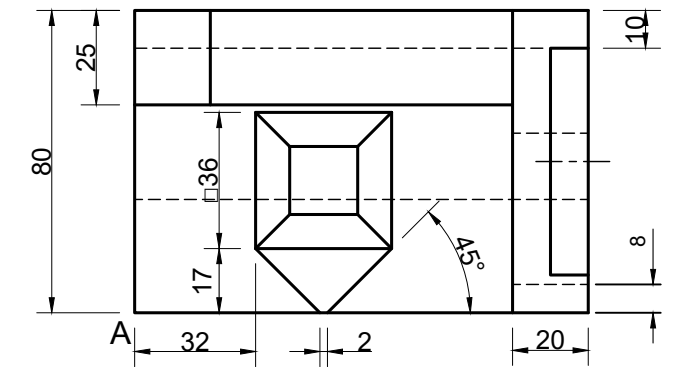
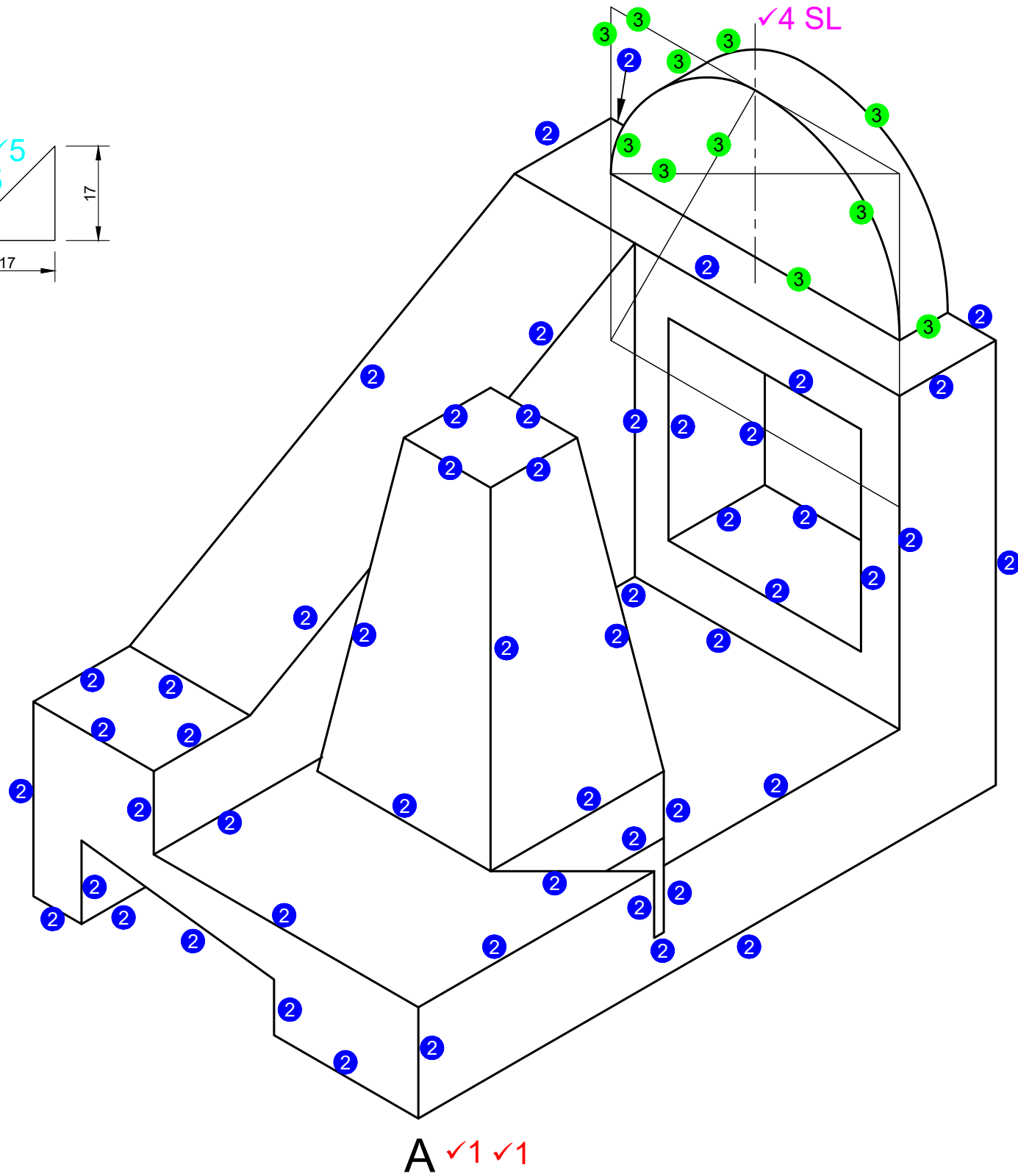
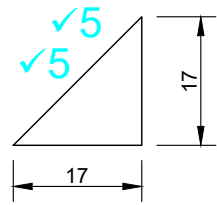
The front view, top view and left view of a casting.
The position of point A on the diagram sheet 3 (page 4).

Instructions:

Use scale 1:1 and convert the orthographic view of the casting into an isometric drawing.

- Make A the lowest point of the drawing.
- Show ALL necessary constructions.
- NO hidden detail is required.

[37]

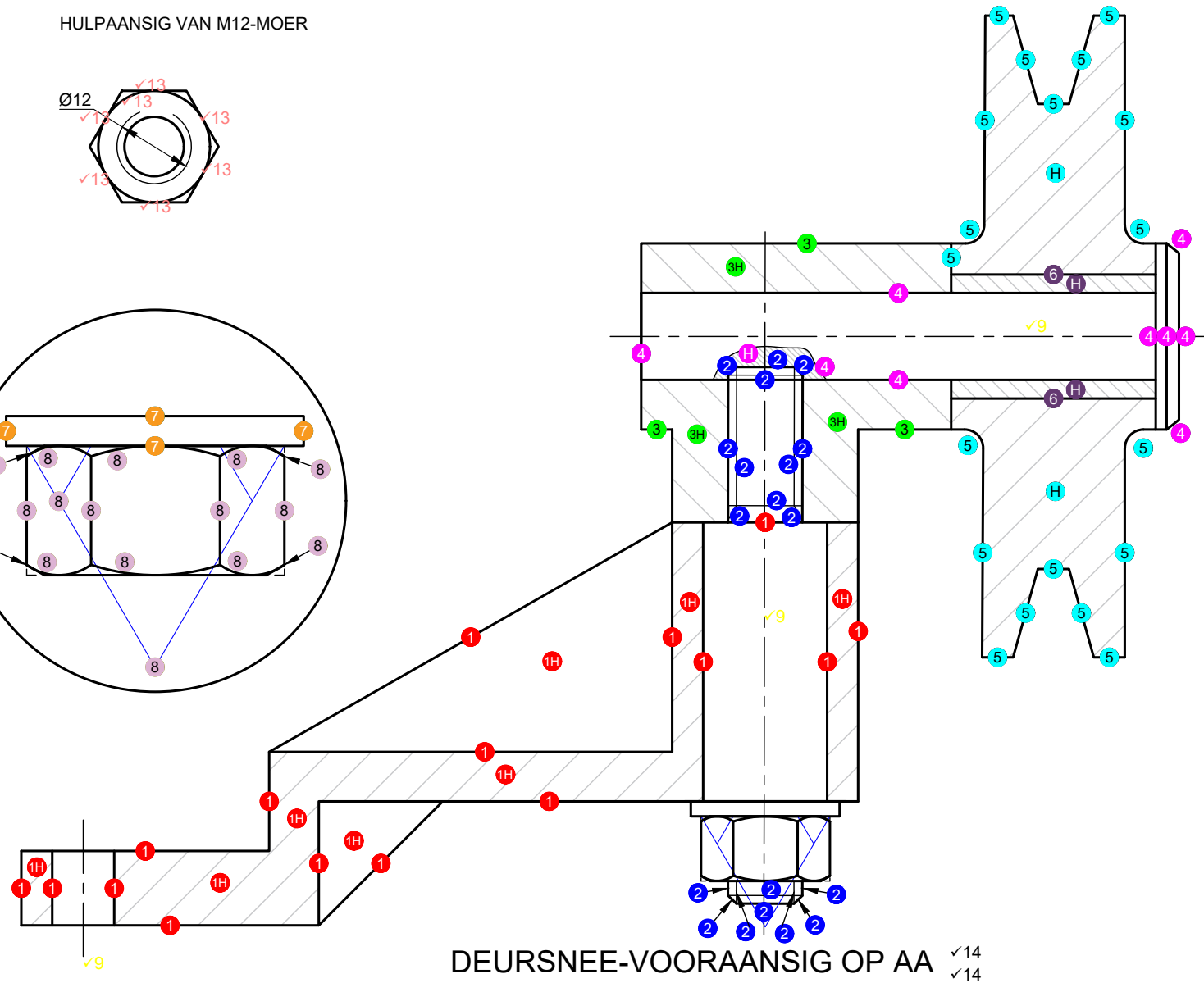
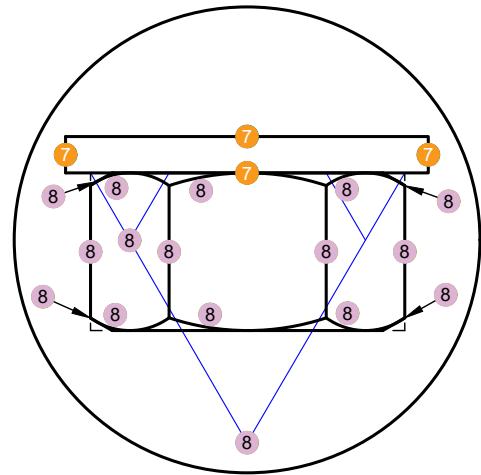
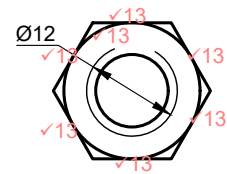


ASSESSMENT CRITERIA

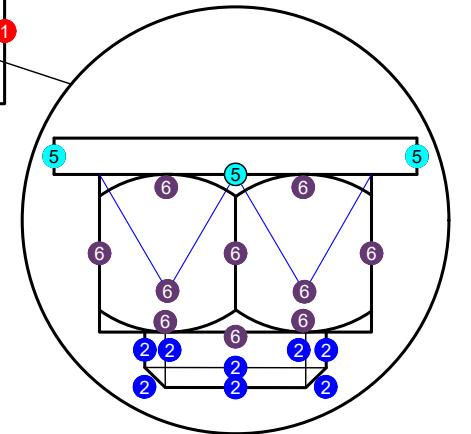
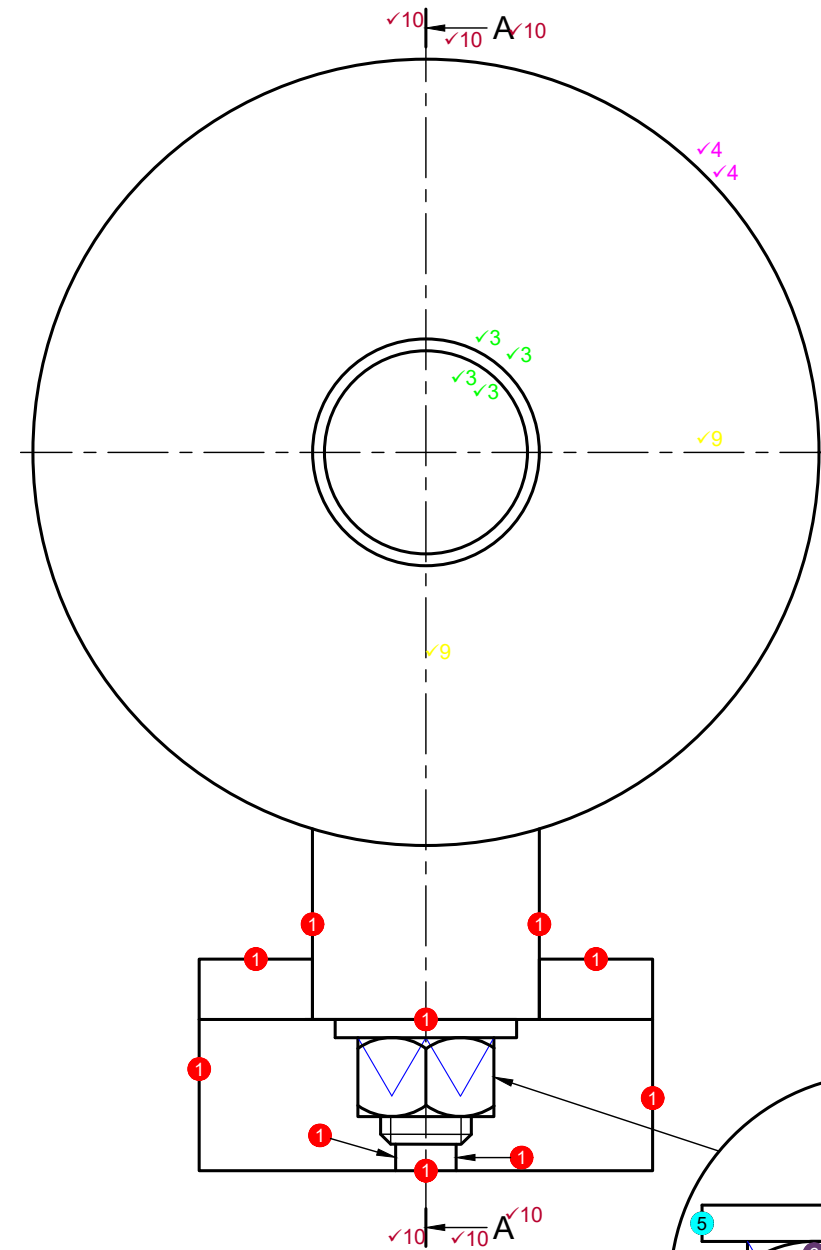
1	PLACEMENT	✓1	2		
	ISO. LINES + NON-ISOMETRIC LINES	②	26½		
2	CIRCLE + CONST	③	5½		
	CENTER LINES	✓4 SL	1		
3	AUXILIARY VIEW or CORRECT PLACEMENT	✓5	2		
			TOTAL	37	

STAPEL

HULPAANSIG VAN M12-MOER



DEURSNEE-VOORAANSIG OP AA ✓14 ✓14



ASSESSMENT CRITERIA			
SECTIONAL FRONT VIEW			
1	PEDESTAL ($\frac{24}{2}$)	1	12
2	STUD ($\frac{19}{2}$)	2	9½
3	SWIVEL HEAD ($\frac{6}{2}$)	3	3
4	PEN ($\frac{10}{2}$)	4	5
5	V-PULLEY ($\frac{22}{2}$)	5	11
6	V-PULLEY BUSH ($\frac{4}{2}$)	6	2
7	WASHER ($\frac{4}{2}$)	7	2
8	M 12 NUT ($\frac{16}{2}$)	8	8
SUB TOTAL			52½

ASSESSMENT CRITERIA			
RIGHT VIEW			
1	PEDESTAL ($\frac{10}{2}$)	1	5
2	STUD ($\frac{8}{2}$)	2	4
3	PEN (4)	3	4
4	V-PULLEY (2)	4	2
5	WASHER ($\frac{3}{2}$)	5	1½
6	M12-NUT ($\frac{10}{2}$)	6	5
SUB TOTAL			21½

ASSESSMENT CRITERIA			
GENERAL			
9	CENTER LINES (5)	✓9	5
10	SECTION LINE A-A (6)	✓10	6
11	TITLE + SCALE (2)	✓11	2
12	PROJECTION SYMBOL (6)	12	3
13	AUXILIARY VIEW (7)	✓13	7
14	TITLE - SECTIONED VIEW (2) ✓14		2
SUB TOTAL			25
TOTAL			99
PENALTIES (-)			
GRAND TOTAL			

TITLE & SCALE	
SWIVEL PULLEY ✓11	
SCALE 1 : 1 ✓11	
PROJECTION SYMBOL	