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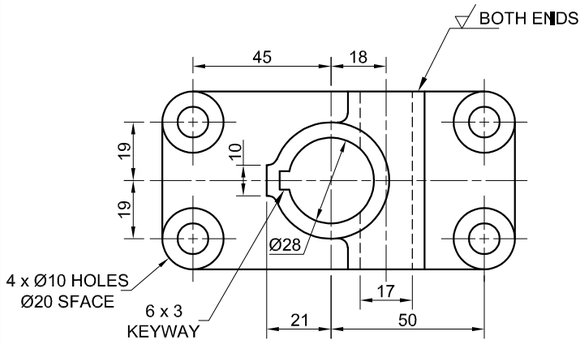
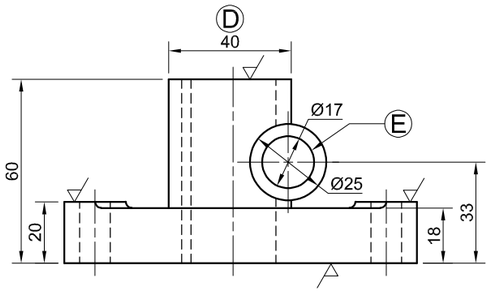
STAPLE

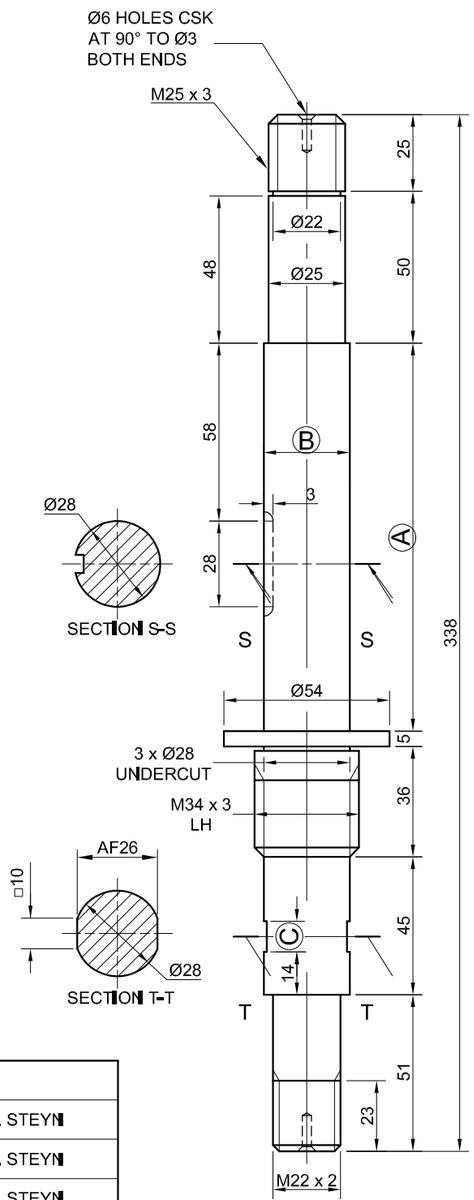


VIEW 2



VIEW 1

BRACKET
SCALE 1 : 3



SHAFT
SCALE 1 : 3

REVISION	DESCRIPTION	DATE	DRAWN
4			
3	CHANGE TOLERANCE TO ± 0,02	09/12/2021	J. STEYN
2	ADD SECTIONS ON SHAFT	08/12/2021	J. STEYN
1	CHANGE INDICATED DIMENSIONS	06/12/2021	J. STEYN

FILE NAME: MS - 11 - 2022	MATERIAL: • BRACKET : WROUGHT IRON • SHAFT: MILD STEEL	ALL UNSPECIFIED RADII ARE 3 mm	TOLERANCE: ± 0,02 UNLESS OTHERWISE STATED
DRAWING No. 13		ALL DIMENSIONS ARE IN MILLIMETRES.	
COMMISSIONED BY: RACK IT MANUFACTURERS	DRAWING PROGRAMME: AUTOCAD 2022	QUANTITY: 3000	SCALE 1 : 3
MILLER DESIGN AND DETAILING 1 ANFIELD PLACE LIVERPOOL X600 www.millerd&d.co.za 012 567 8910		DRAWN BY: J. BONGANI	DATE: 2021/12/04
		CHECKED: S. SMITH	DATE: 2021/12/12
		APPROVED BY: J. BHIKA	DATE: 2021/12/17
TITLE: BRACKET AND SHAFT			

GRINDING
0,8
0,2 C

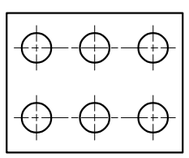
QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Two views of a bracket, and a view of a shaft, a title block and a table of questions. The drawings are not presented to the indicated scale.

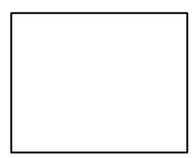
Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawings, the title block and mechanical content. **[30]**

	QUESTIONS	ANSWERS			
1	Who checked the drawing?		1		
2	How many revisions have been made?		1		
3	From what material must the shaft be manufactured?		1		
4	How many holes are there in the bracket?		1		
5	What type of sections are S–S and T–T of the shaft?		1		
6	How many screw threads must be cut on the shaft?		1		
7	If VIEW 2 of the bracket is the front view, what would VIEW 1 be called?		1		
8	What does the abbreviation *AF* stand for?		1		
9	What is the abbreviation for countersunk?		1		
10	Determine the complete dimensions at: A: B: C:		3		
11	What is the height of the spot face on the bracket?		1		
12	What is the depth of the keyway on the shaft?		1		
13	If scale 1 : 1 was used, what would the dimension at D read?		1		
14	With reference to the orthographic system used, on which side of the truncated cone of the projection symbol would the two circles be drawn?		1		
15	Specify the size and depth for the left-hand thread.		1		
16	How many surfaces on the bracket must be machined?		1		
17	With reference to the tolerance, determine the **minimum** diameter of the hole at E.		2		
18	With reference to the machining symbol in the title block, what do the following component specifications refer to?	0,2	1		
		0,8	1		
		GRINDING	1		
		C	1		
19	In the space below (ANSWER 19), complete, in neat freehand, the *SANS 10111* conventional representation for the given holes on a LINEAR PITCH.		3		
20	In the space below (ANSWER 20), complete, in neat freehand, the *SANS 10111* conventional representation for an INTERRUPTED VIEW on a square bar.		3		
		TOTAL	30		

QUESTION 19:

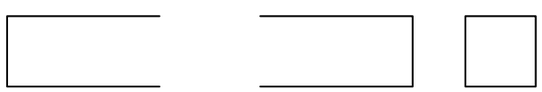


DETAILED



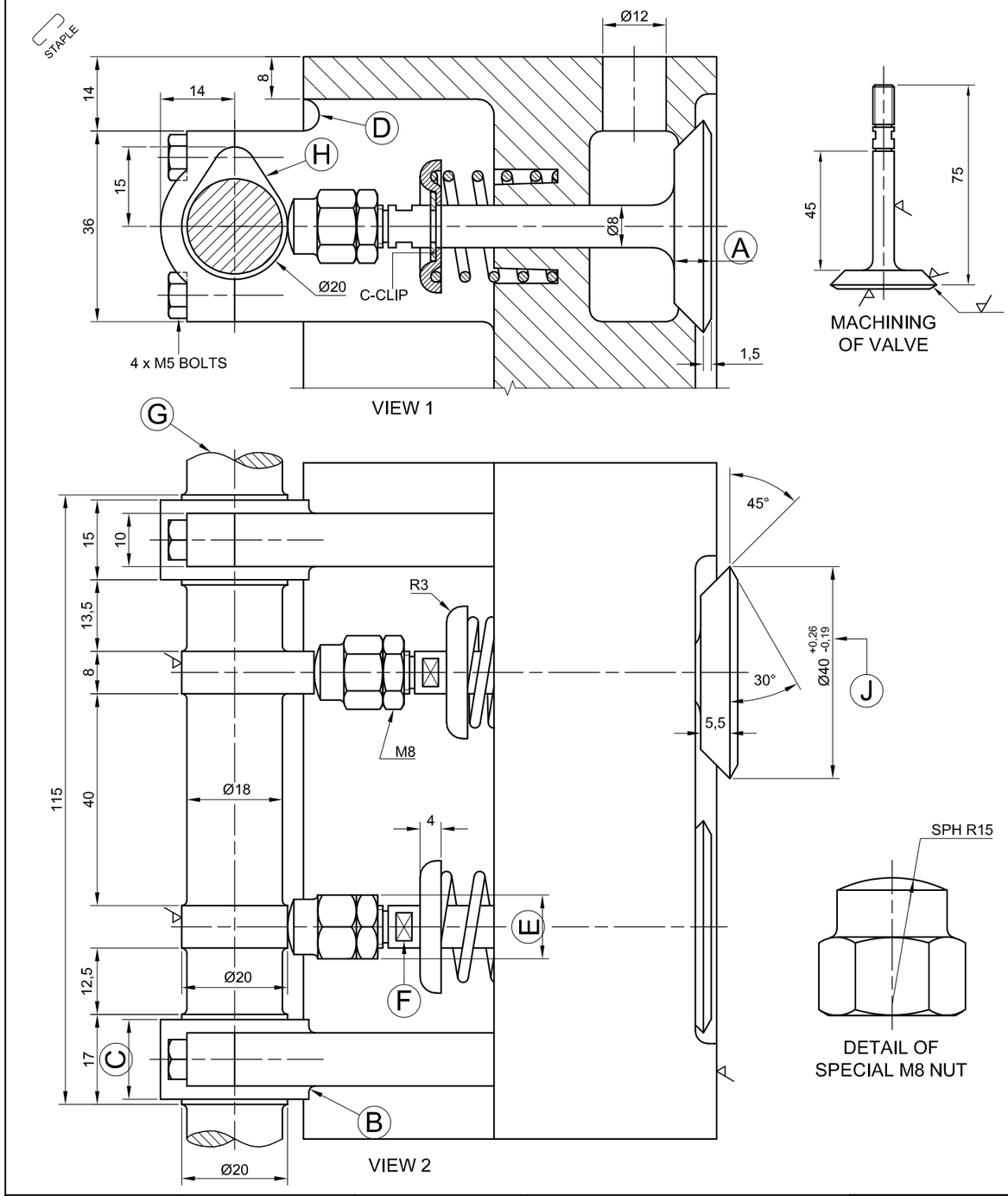
CONVENTION

ANSWER 20:



EXAMINATION NUMBER

EXAMINATION NUMBER 2



FILE NAME: JBVW101	DRAWING No. CAM12	DRAWING SET: 1 OF 4	MC ENGINEERING WORKS www.cheads.co.za CELL: 090 714 4322 44 DIESEL STREET KIMBERLEY 0220
DRAWING PROGRAM: AUTOCAD 2021		SCALE 1 : 1	
DRAWN:	VUSI	DATE: 02/04/2021	ALL UNSPECIFIED RADII ARE R2.
CHECKED:	TARYN	DATE: 03/05/2021	TITLE CYLINDER HEAD SUB-ASSEMBLY
APPROVED:	GERALD	DATE: 02/07/2021	

GRINDING
1
3,2
0,55

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Two sectional views of a cylinder head sub-assembly, a detailed view of a valve, a title block and a table of questions. The drawing is not presented to the indicated scale.

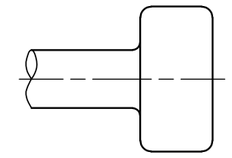
Instructions:
Complete the table below by neatly answering the questions which refer to the accompanying drawing, the title block and mechanical content. **[30]**

	QUESTIONS	ANSWERS			
1	What is the name of the manufacturing company?		1		
2	Who approved the drawing?		1		
3	How many sets of drawings are there for this sub-assembly?		1		
4	On what date was the drawing prepared?		1		
5	Referring to the projection symbol, what is the projection system used?		1		
6	Which drawing program was used to prepare the drawing?		1		
7	What size bolts are required for the sub-assembly?		1		
8	How many coil springs are there in this sub-assembly?		1		
9	Determine the complete dimensions at: A: B: C: D: E:		5		
10	What is the radius of the spherical cap?		1		
11	What does the convention at F indicate?		1		
12	What does the convention at G indicate?		1		
13	What machining method must be used on the machined surfaces?		1		
14	With reference to the tolerence, determine the **minimum** dimension at J.		1		
15	With reference to the CAM at H, determine the displacement of the follower.		1		
16	If VIEW 1 is the SECTIONAL FRONT VIEW, what is VIEW 2 called?		1		
17	How many surfaces on this sub-assembly require machining?		1		
18	Insert the cutting plane for VIEW 1 on VIEW 2 and label it A-A.		3 ½		
19	In the space below (ANSWER 19), draw, in neat freehand, the complete *SANS 10111* conventional representation of a COIL SPRING.		3		
20	On the drawing below (ANSWER 20), draw, in neat freehand, the complete *SANS 10111* conventional representation for DIAMOND KNURLING.		2 ½		
		TOTAL	**30**		

ANSWER 19

COMPLETE CONVENTIONAL REPRESENTATION OF A COIL SPRING

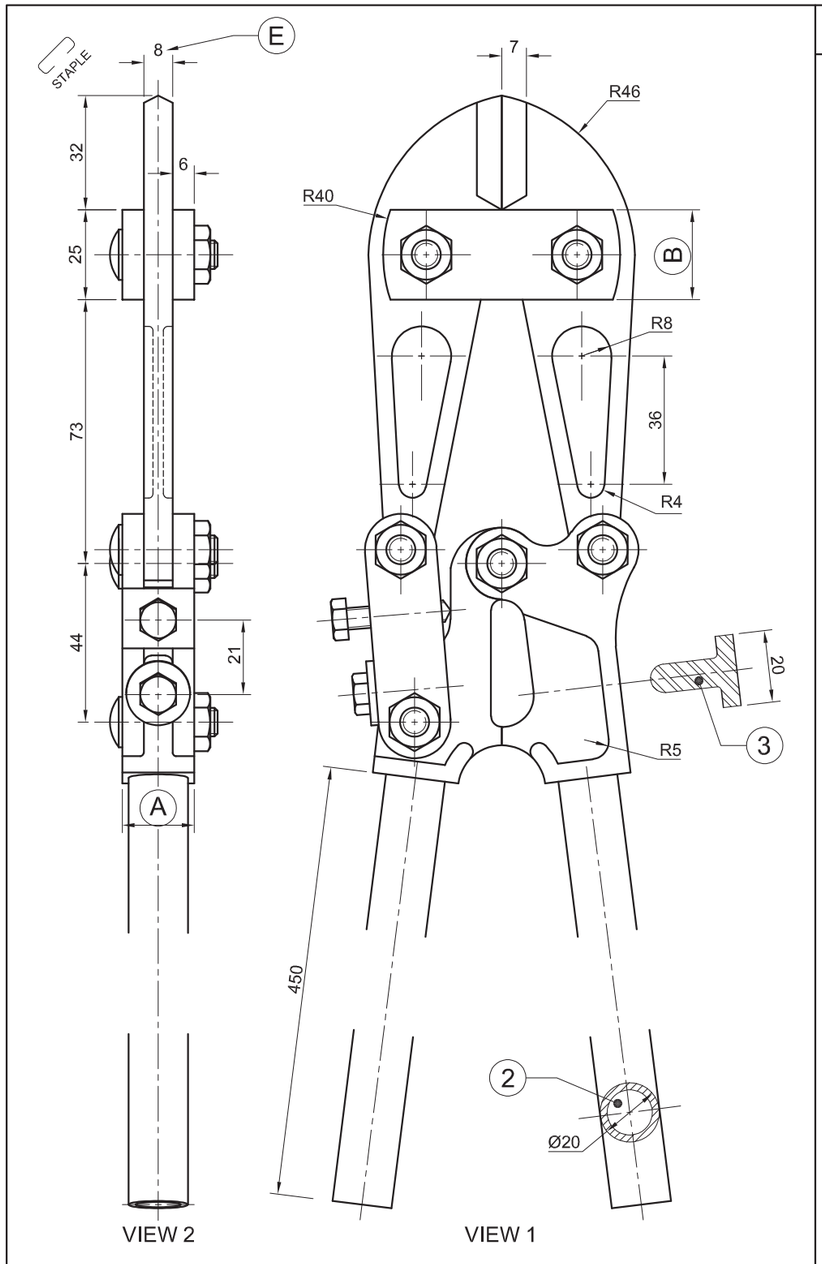
ANSWER 20



CONVENTIONAL REPRESENTATION OF DIAMOND KNURLING

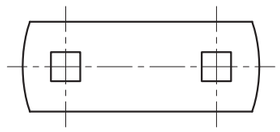
EXAMINATION NUMBER

EXAMINATION NUMBER 2

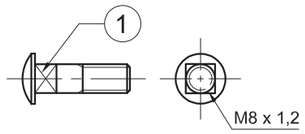


VIEW 2 VIEW 1

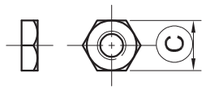
PARTS OF THE JAWS



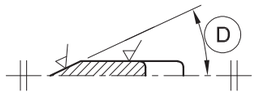
RETAINING PLATE

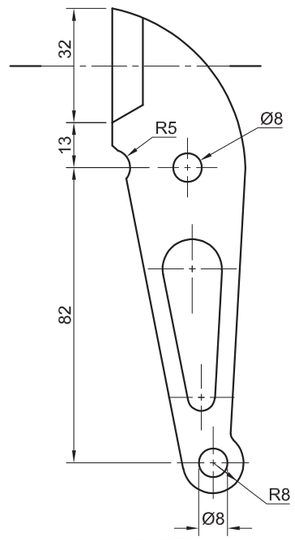


M8 COACH BOLT



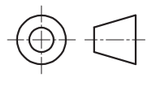
M8 NUT

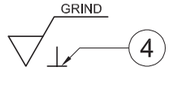




CUTTING JAW

FILE NAME: WVJ - 2021-091	MATERIAL: STEEL	ALL UNSPECIFIED RADII ARE 3 mm	TOLERANCE: +0,32 -0,21
DRAWING No. 11	SCALE 1 : 4		
COMMISSIONED BY: CUT BOLT MANUFACTURERS, EDMOND ST, SPRINGS	DRAWING PROGRAMME: AUTOCAD 2021	ALL DIMENSIONS ARE IN MILLIMETRES	
		QUANTITY: 1 000 BOLT CUTTERS	
SIEDA DRAUGHTING CC 63 STANNARD CRESCENT HENNOPS PARK 9669 www.siedadraw.co.za 020 321 4567		DRAWN BY: RAY	DATE: 2021-01-08
		CHECKED BY: ALDIN	DATE: 2021-02-01
		APPROVED BY: WESLEY	DATE: 2021-03-05
TITLE: BOLT CUTTER			





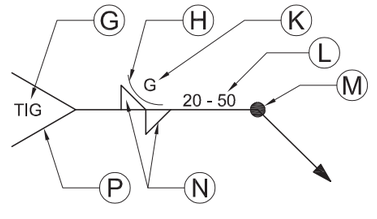
QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
The incomplete front view and left view of a bolt cutter, views of the parts of the jaws, a title block and a table of questions. The drawings are not presented to the indicated scale.

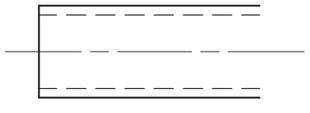
Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawings, the title block and mechanical content. **[30]**

	QUESTIONS	ANSWERS			
1	What was Aldin responsible for?		1		
2	What is indicated by the number WVJ-2021-091?		1		
3	Who is the client that commissioned the project?		1		
4	What is the radius of all unspecified curves?		1		
5	What is VIEW 2 called?		1		
6	How many cutting jaws will be required for the full order?		1		
7	How many M8 nuts are required for each bolt cutter?		1		
8	What is indicated by the cross at 1?		1		
9	What type of section is indicated at 2?		1		
10	Determine the complete dimension at: A: B: C:		3		
11	Measure the angle at D.		1		
12	Determine the total length of the cutting jaw.		1		
13	What is the specified depth of the thread on the M8 coach bolt?		1		
14	Complete the cutting plane on the cutting jaw by inserting the arrows. Label the cutting plane K-K.		3		
15	How many surfaces of the cutting jaw must be machined?		1		
16	Referring to the machining symbol in the title block, what is indicated by the symbol at 4?		1		
17	Describe the mistake at 3.		1		
18	With reference to the tolerance, determine the minimum dimension at E.		1		
19	With reference to the welding symbol below (QUESTION 19), match the letter on the symbol with the correct label in the column to the right of this question.	TAIL	1		
		CONTOUR	1		
		WELDING PROCESS	1		
		FINISH SYMBOL	1		
		WELDING PITCH/SPACING	1		
20	Complete, in neat freehand, the pipe below (ANSWER 20), by adding the *SANS 10111* convention for an interrupted view, as required for the gaps in the handles of the bolt cutter.		3		
		TOTAL	**30**		

QUESTION 19



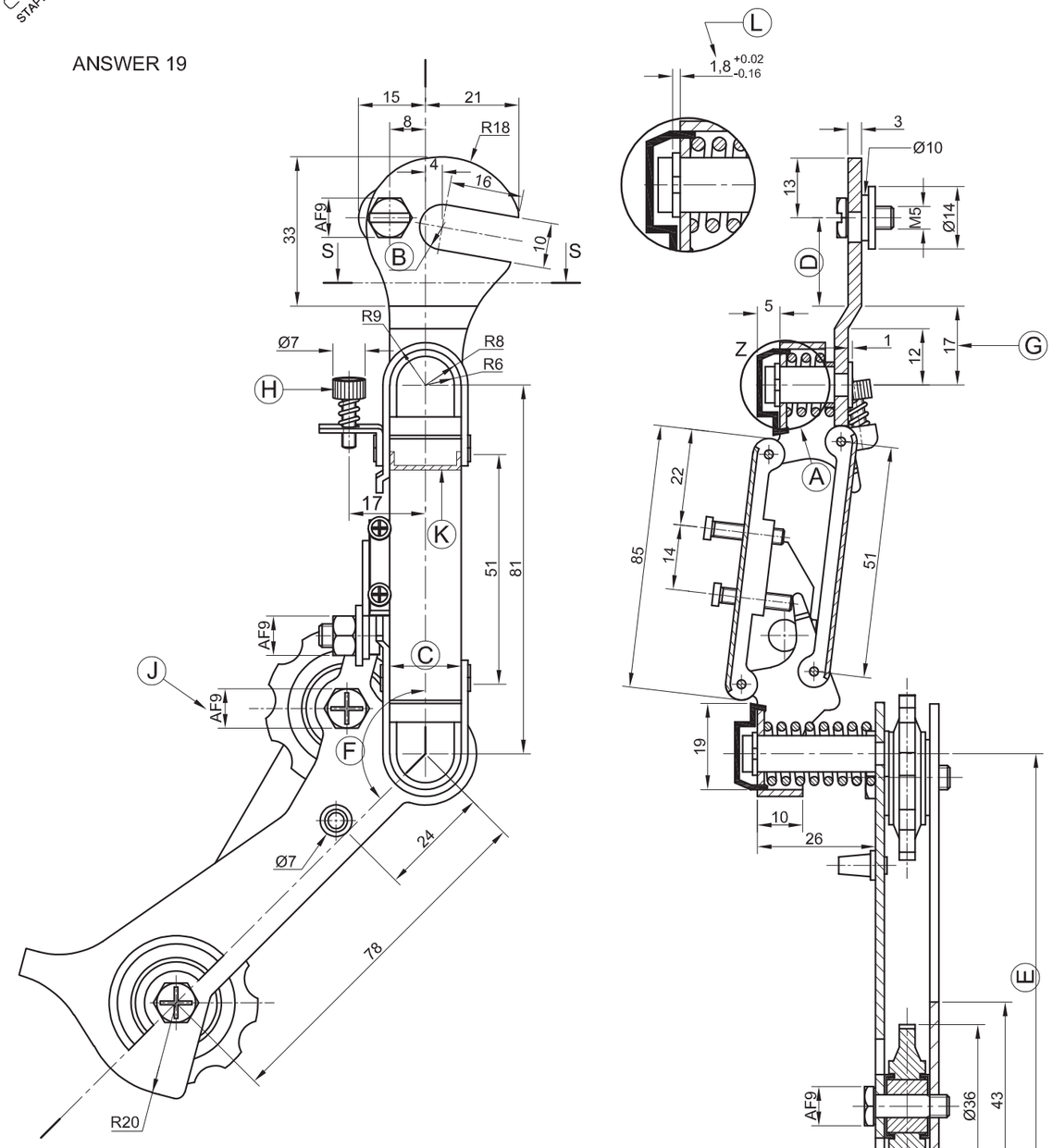
ANSWER 20



EXAMINATION NUMBER	
EXAMINATION NUMBER	2

STAPLE

ANSWER 19



VIEW 1

VIEW 2

FILE NAME: VBJW031	DRAWING No: JOP12	DRAWING SET: 1 OF 3
DRAWING PROGRAM: AUTOCAD 2019		SCALE 1 : 1
DRAWN BY:	REINHARD	DATE: 02/03/2020
CHECKED BY:	MAFIKA	DATE: 03/03/2020
APPROVED BY:	TSUMI	DATE: 09/03/2020

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TITLE REAR DERAILLEUR ASSEMBLY

18 SPEED STREET
CHAINVILLE
0110

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Two views of a rear derailleur assembly for a bicycle, a detailed enlargement, a title block and a table of questions. The drawing is not presented to the indicated scale.

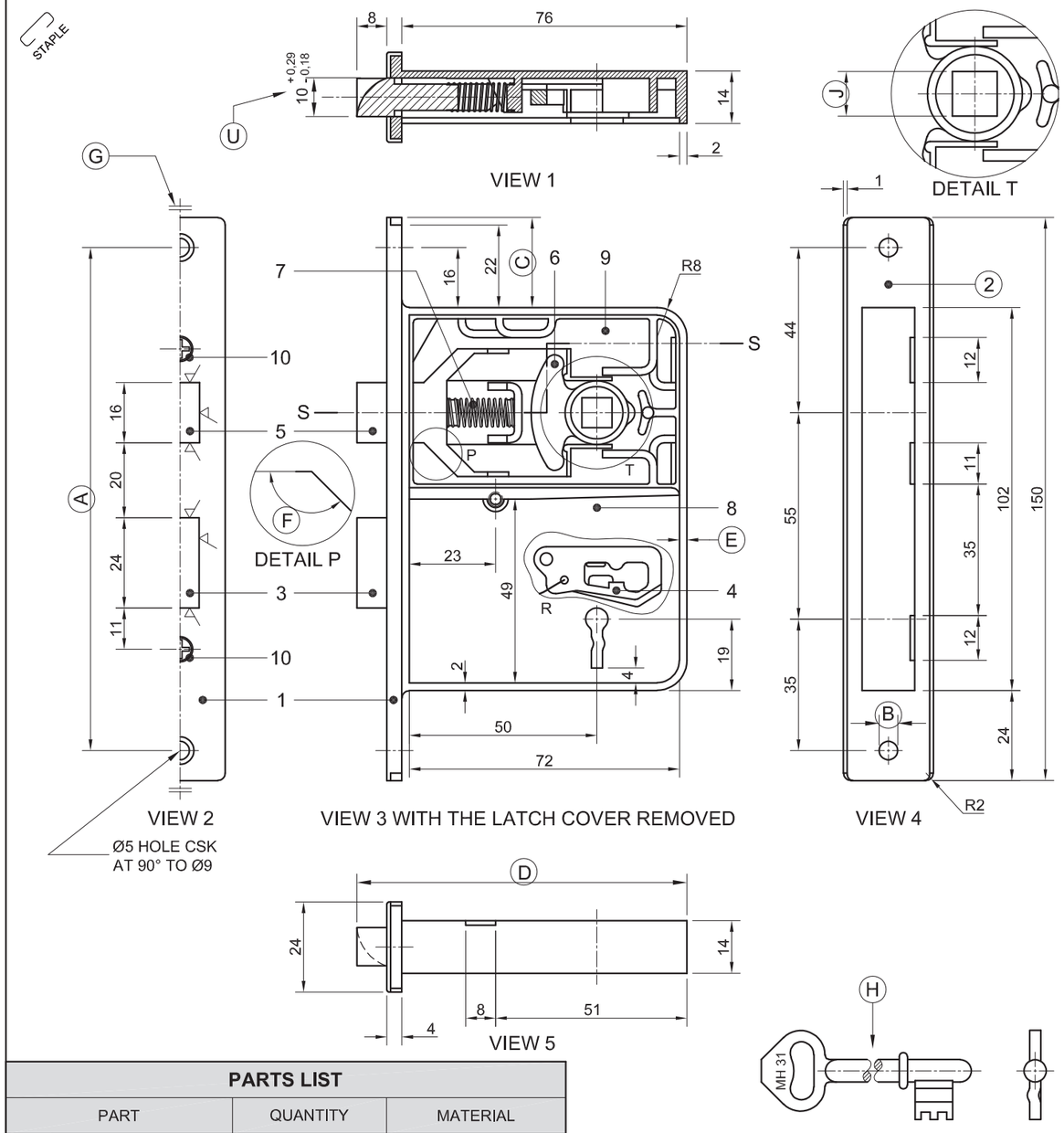
Instructions:
Complete the table below by neatly answering the questions which refer to the accompanying drawing, the title block and mechanical content. **[30]**

	QUESTIONS	ANSWERS			
1	What is the title of the drawing?		1		
2	In which street is the engineering company situated?		1		
3	How many sets of drawings are there for this assembly?		1		
4	Who checked the drawing?		1		
5	What is the file name?		1		
6	If VIEW 1 is the front view, what is VIEW 2 called?		2		
7	Label the detailed enlargement of the encircled area at A on the given drawing.		1		
8	How many coil springs are there in the assembly?		1		
9	Determine the complete dimensions at: B: C: D: E:		4		
10	Measure the angle at F.		1		
11	If scale 1 : 2 was used, what would the dimension at G read?		1		
12	Name the type of finish at H.		1		
13	What does the abbreviation *AF* at J stand for?		1		
14	Name the type of section at K.		1		
15	Complete the cutting plane in VIEW 1 by inserting the arrows. Label the cutting plane P-P.		3		
16	Name the type of section produced by cutting plane P-P.		1		
17	With reference to the tolerance, determine the complete minimum dimension at L.		2		
18	In the space below (ANSWER 18), draw, in neat freehand, the *SANS 10111* conventional representation of a BEARING.		3		
19	In the space to the left of VIEW 1, under ANSWER 19, draw and label, in proportion and in neat freehand, a removed section according to cutting plane S-S.		3		
		TOTAL	**30**		

ANSWER 18:

EXAMINATION NUMBER

EXAMINATION NUMBER 2



PARTS LIST			
	PART	QUANTITY	MATERIAL
1	FACE PLATE	1	METAL
2	LOCK BODY	1	PLASTIC
3	BOLT LOCK	1	PEWTER
4	LEVER LOCK	2	METAL
5	LATCH	1	PEWTER
6	LATCH TRIGGER	1	PLASTIC
7	SPRING	1	SPRING STEEL
8	BOLT COVER	1	PLASTIC
9	LATCH COVER	1	PERSPEX
10	SCREW	3	METAL

DRAWING PROGRAM: CAD	SCALE 1 : 1	MANUFACTURING PROCESSES: - PLATE BENDING - INJECTION MOULDING - MILLING
APPROVED: ANDY	DATE: 2018/09/14	
CHECKED: JOHN	DATE: 2018/08/31	
DRAWN: SIPO	DATE: 2018/08/30	DRAWING NR: DL 04
TOP LOCK COMPANY		SAFETY & SECURITY SHOP 2 MORTICE ROAD www.lockcompany.co.za
TITLE **TWO-LEVER DOOR LOCK**		

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Five views of a door lock, two detailed enlargements, two views of a key, a parts list, 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 questions which refer to the accompanying drawing, title block and mechanical content. **[30]**

	QUESTION	ANSWER			
1	What is the title of the drawing?		1		
2	Who prepared the drawing?		1		
3	On what date was the drawing approved?		1		
4	What is the drawing number?		1		
5	How many manufacturing processes are required?		1		
6	How many parts make up the door lock?		1		
7	What material is used to manufacture the latch cover?		1		
8	What is VIEW 5 called?		1		
9	Determine the complete dimensions at A: B: C: D: E:		5		
10	Measure the angle at F.		1		
11	Name the convention at G.		1		
12	What type of view is produced by the S-breaks at H?		1		
13	What type of section is produced by cutting plane S-S?		1		
14	Insert the arrows for cutting plane S-S on the drawing.		2		
15	If the square in DETAIL T is 9 x 9 mm, show the alternative method of showing the dimension of 9 x 9 at J.		1		
16	How many flat surfaces must be machined?		1		
17	Name the direction of lay that must be applied to machined surfaces.		1		
18	With reference to the tolerance, determine the maximum dimension at U.		2		
19	In the space below (ANSWER 19), draw, in neat freehand, the conventional representation of a coil spring.		3		
20	In the space below (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		3		
		TOTAL	**30**		

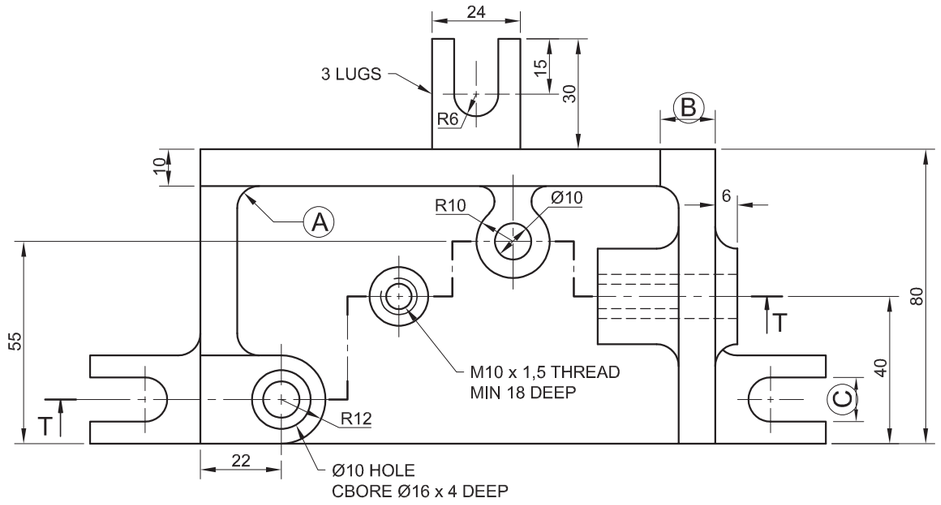
ANSWER 19: Conventional representation for a coil spring

ANSWER 20: Projection symbol

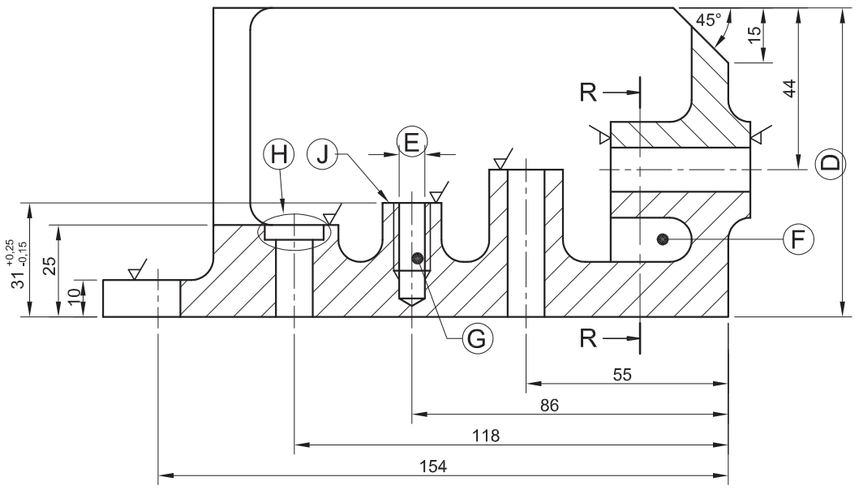
EXAMINATION NUMBER

EXAMINATION NUMBER 2

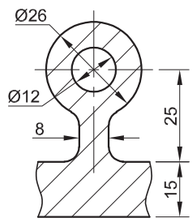
STAPLE



VIEW 2



VIEW 1



VIEW R-R

FILE NAME: MJIG-12-V5	MATERIAL: CAST IRON	QUANTITY: 30 UNITS	FINISH: POLISHED
DRAWING No. 3	SCALE 1 : 2		
COMMISSIONED BY: JR MANUFACTURES 105 FIRST AVENUE, BRITS	DRAWING PROGRAMME: AUTOCAD 2018	ALL DIMENSIONS ARE IN MILLIMETRES	
		ALL UNSPECIFIED RADII ARE 4 mm	
CASTFORM ENGINEERING 98 BROAD STREET MIDDELFONTEIN 4070 www.foundry.co.za ☎ 003 645 7820		DRAWN BY: SIPHO	DATE: 2018-11-13
		CHECKED BY: INGRID	DATE: 2018-12-14
		APPROVED BY: NDINGI	DATE: 2019-01-21
TITLE: MECHANICAL JIG			

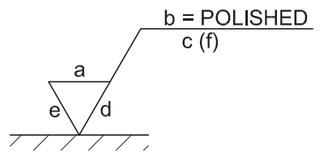
QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Two views and a section of a mechanical jig, 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 questions which refer to the accompanying drawing, the title block and mechanical content. **[30]**

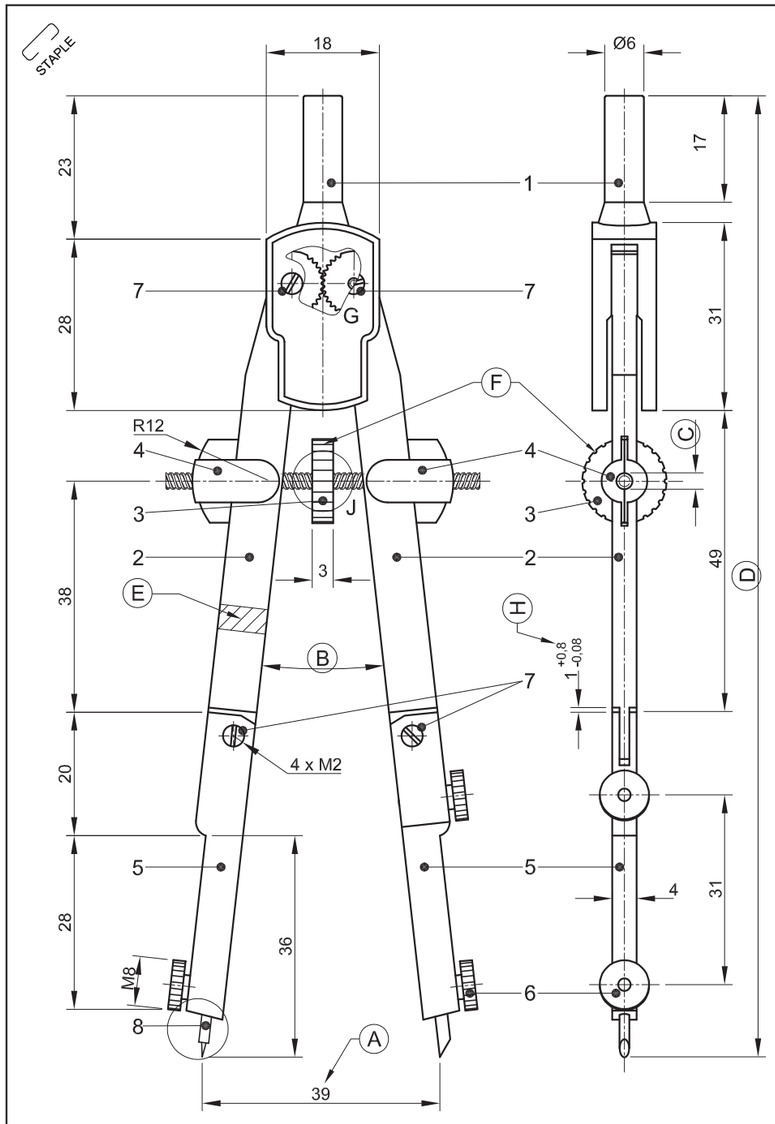
	QUESTIONS	ANSWERS			
1	What was Ingrid's responsibility?		1		
2	What is the manufacturer's web site address?		1		
3	What is the file name?		1		
4	Who is the client?		1		
5	How many jigs must be manufactured?		1		
6	What is VIEW 1 called?		2		
7	What type of section is VIEW R-R?		1		
8	Name the type of section that will be produced by cutting plane T-T.		1		
9	Determine the complete dimensions at: A: B: C: D: E:		5		
10	Determine the total length of the jig.		1		
11	Name the feature at F.		1		
12	What is the minimum depth of the thread required for the hole at G?		1		
13	Name the feature at H.		1		
14	How many surfaces of the jig must be machined?		1		
15	Describe the hatching mistake on VIEW 1.		2		
16	With reference to the tolerance, determine the minimum height at J.		1		
17	With reference to the machining symbol below, match the letter on the symbol with the correct label in the column to the right of this question.	DIRECTION OF LAY	4		
		ROUGHNESS VALUE			
		SAMPLING LENGTH			
		MACHINING ALLOWANCE			
18	In the space below (ANSWER 18), draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

QUESTION 17:

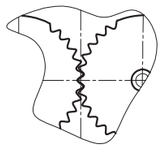


ANSWER 18:

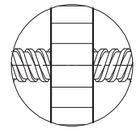
EXAMINATION NUMBER	
EXAMINATION NUMBER	2



VIEW 1 VIEW 2



DETAIL G



DETAIL J

ANSWER 16:
Conventional representation of the assembled meshing gears.

PARTS LIST			
	PART	QUANTITY	MATERIAL
1	GRIP	1	PLASTIC
2	LEGS	2	PEWTER
3	M3 ADJUSTMENT SHAFT AND WHEEL	1	STEEL + PLASTIC
4	QUICK RELEASE	2	PLASTIC
5	EXTENSION	2	PEWTER
6	STUD + LOCK WHEEL	3	STEEL + PLASTIC
7	M2 LOCK SCREW	4	TOOL STEEL
8	NEEDLE POINT	1	TOOL STEEL

APPROVED: SAMUEL	DATE: 2018-06-07
CHECKED: JONAS	DATE: 2018-05-01
DRAWN: WESSLY	DATE: 2018-03-30
DRAWING PROGRAM: AUTOCAD 2018	SCALE 1 : 1

BEST STATIONERY

123 Pencil Road
Johannesburg
www.beststationery.com

TITLE COMPASS

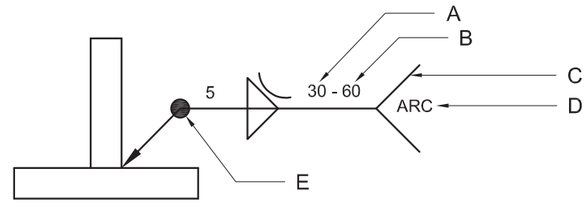
QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
The front view and the right view of a compass, two detailed enlargements, a parts list, a title block, a welding symbol and a table of questions. The drawing has not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions which refer to the accompanying drawing, the title block and mechanical content. **[30]**

	QUESTIONS	ANSWERS			
1	What is the title of the drawing?		1		
2	Who prepared the drawing?		1		
3	What material is used to manufacture the needle point?		1		
4	How many parts make up the compass assembly?		1		
5	What is VIEW 2 called?		1		
6	What would be an advantage of a compass with an adjustment shaft and wheel?		1		
7	What is the purpose of part 4?		1		
8	With reference to the dimension at A, what will the diameter of the circle be at the current setting?		1		
9	Measure the angle at B.		1		
10	Determine the complete dimensions at: C:	D:	2		
11	Name the type of section at E.		1		
12	Name the finish on the adjustment wheel at F.		1		
13	What is the purpose of the finish on the adjustment wheel at F?		1		
14	With reference to the tolerance, determine the minimum dimension at H?		1		
15	With reference to the welding symbol below, match the letter on the welding symbol with the label in the column to the right of this question.	FIELD/SITE WELD	5		
		TAIL			
		WELD LENGTH			
		WELD PITCH			
		WELD PROCESS			
16	With reference to DETAIL G, draw, in neat freehand and in the space provided on the drawing sheet (ANSWER 16), the *SANS 10111* conventional representation of the assembled meshing gears.		6		
17	In the space below (ANSWER 17), draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

QUESTION 15: Welding symbol

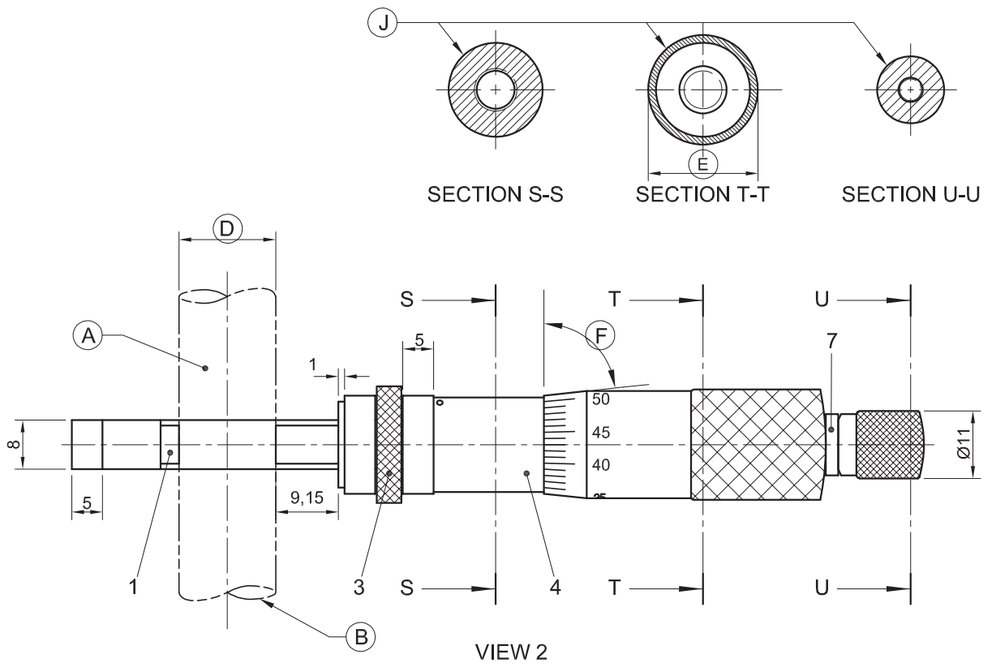


ANSWER 17: Projection symbol

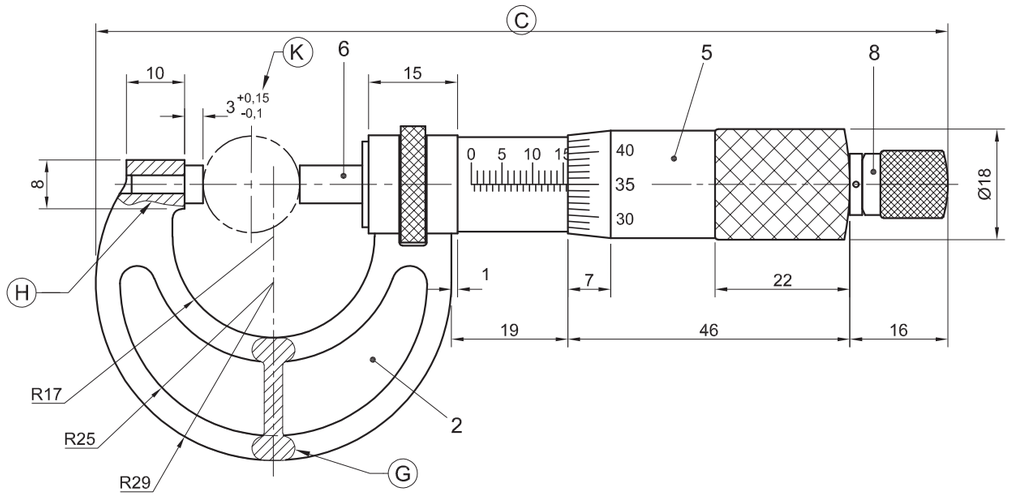
EXAMINATION NUMBER

EXAMINATION NUMBER 2

STAPLE



VIEW 2



VIEW 1

PARTS LIST			
	PART	QUANTITY	MATERIAL
1	ANVIL	1	TUNGSTEN
2	FRAME	1	CAST IRON
3	SPINDLE LOCKNUT	1	TOOL STEEL
4	INNER SLEEVE	1	TOOL STEEL
5	OUTER SLEEVE	1	TOOL STEEL
6	SPINDLE	1	SILVER STEEL
7	SCREW	1	TOOL STEEL
8	RATCHET	1	TOOL STEEL

DRAWING PROGRAM: AUTOCAD 2018		SCALE 1 : 1
DIMENSIONS ARE ACCURATE AT 20 °C	DRAWING NUMBER MC 25-V2018	
ACCURACY: 1 TURN OF THE OUTER SLEEVE = 0,5 mm		
MEASUREMENT RANGE: MINIMUM = 0,01 & MAXIMUM = 25,00		
APPROVED: SIYABONGI	DATE: 2018-02-28	
CHECKED: JACQUES	DATE: 2018-02-10	
DRAWN: WENDY	DATE: 2018-01-08	
TITLE: MICROMETER		

QUESTION 1: ANALYTICAL (MECHANICAL)

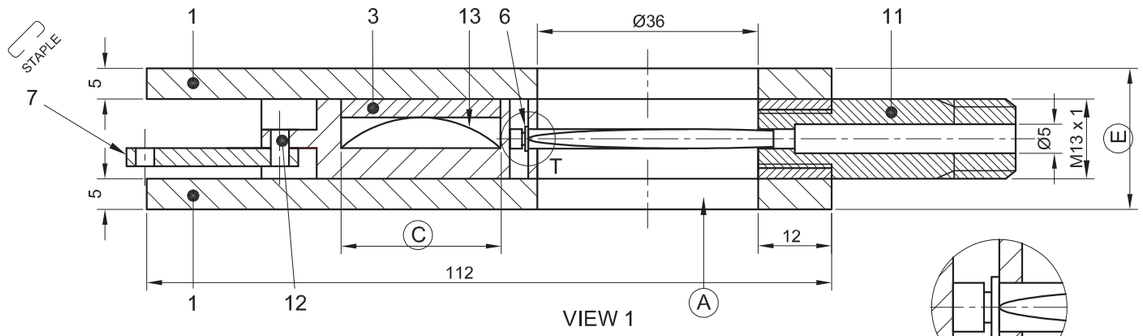
Given:
The front view and top view of a micrometer, sections, a parts list, a title block and a table of questions. The drawing has not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions which refer to the accompanying drawing, title block and mechanical content. **[30]**

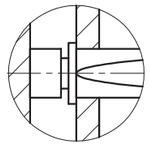
	QUESTIONS	ANSWERS			
1	Who prepared the drawing?		1		
2	On what date was the drawing checked?		1		
3	What was Siyabongi's responsibility?		1		
4	What is the drawing number?		1		
5	What material is used to manufacture the anvil?		1		
6	How many parts make up this micrometer?		1		
7	At what temperature will the micrometer be accurate?		1		
8	What is the maximum size that this micrometer can measure?		1		
9	Why is the shaft at A drawn as a phantom line (double chain line)?		1		
10	What does the S-break at B indicate?		1		
11	Give TWO uses of chain lines on mechanical drawings.		2		
12	How many surfaces on this micrometer are knurled?		1		
13	What is VIEW 1 called?		1		
14	Determine the complete dimensions at: C: D: E:		5		
15	Measure the angle at F.		1		
16	Name the type of section at G.		1		
17	Name the type of section at H.		1		
18	Name the type of section at J.		2		
19	With reference to the tolerance at K, determine the minimum dimension.		2		
20	In the space below (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

ANSWER 20: Projection symbol

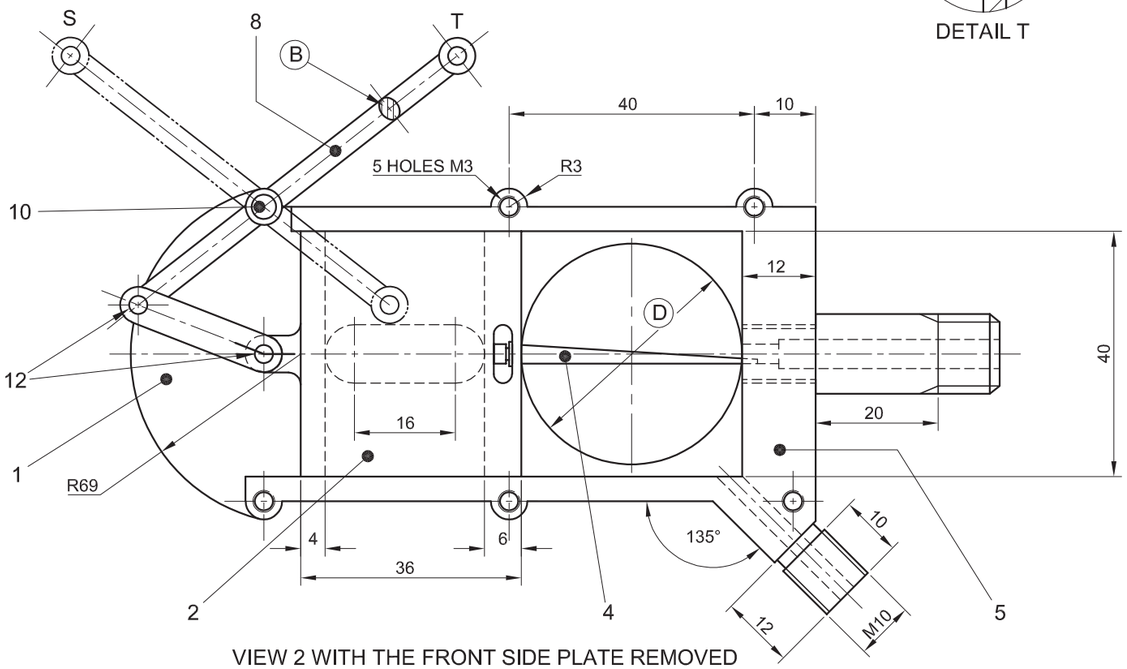
EXAMINATION NUMBER	
EXAMINATION NUMBER	2



VIEW 1



DETAIL T



VIEW 2 WITH THE FRONT SIDE PLATE REMOVED

PARTS LIST			
	PART	QUANTITY	MATERIAL
1	SIDE PLATE	2	STAINLESS STEEL
2	SLIDE	1	BRASS
3	VALVE PLATE	1	BRASS
4	THROTTLE NEEDLE	1	BRASS
5	THROTTLE FRAME	1	STAINLESS STEEL
6	E-CLIP	1	SPRING STEEL
7	LINK	1	MILD STEEL
8	LEVER	1	MILD STEEL
9	MACHINE SCREW M3	10	MILD STEEL
10	Ø4 PIVOT	1	MILD STEEL
11	CONNECTOR	1	BRASS
12	PIN	2	MILD STEEL
13	BLADE SPRING	1	SPRINGSTEEL

APPROVED: ALEX	DATE: 2018-05-17
CHECKED: ROLI	DATE: 2018-05-12
DRAWN: NICOLENE	DATE: 2018-04-29
DRAWING PROGRAM: AUTOCAD 2018	FILE NAME: BR2018
ALL UNSPECIFIED RADII ARE R2.	SCALE 1 : 1

AERO MAN

1 VISCOUNT STREET
HOPEFIELD
4561
www.aeroman.co.za
☏ 023-555 6699

TITLE

THROTTLE ASSEMBLY

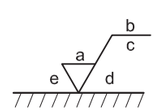
QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Two views and a detailed enlargement of a throttle assembly, a parts list, 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 questions, which refer to the accompanying drawing and the title block. **[30]**

	QUESTIONS	ANSWERS			
1	What is the manufacturer's street address?		1		
2	What is the file name of the drawing?		1		
3	Who checked the drawing?		1		
4	Which draughting method was used to prepare the drawing?		1		
5	What is the radius of all unspecified curves?		1		
6	What material is used to manufacture the throttle needle?		1		
7	How many parts make up the assembly?		1		
8	What is the shape of the unhatched area at A?		1		
9	Name the type of section at B.		1		
10	Give the complete title of VIEW 1?		1		
11	How many screw threads are shown in VIEW 2?		1		
12	The extreme positions of the lever (part 8) are S and T. Using the correct line type, according to the *SANS 10111,* draw the movement of the lever between S and T .		2		
13	Determine the complete dimensions at C: D: E:		3		
14	Why is part 12 in VIEW 1 not hatched?		1		
15	Name ALL the parts shown in DETAIL T.		3		
16	With reference to the machining symbol below, match the letter on the symbol with the correct element in the column to the right of this question.	DIRECTION OF LAY	1		
		MACHINING ALLOWANCE	1		
		PRODUCTION METHOD	1		
		ROUGHNESS VALUE	1		
17	Insert the cutting plane on VIEW 2 and label it A-A.		3		
18	In the space below (ANSWER 18), draw, in neat freehand, the symbol for the projection system used.		3		
		TOTAL	**30**		

QUESTION 16: MACHINING SYMBOL

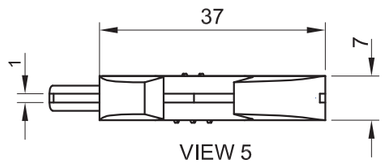


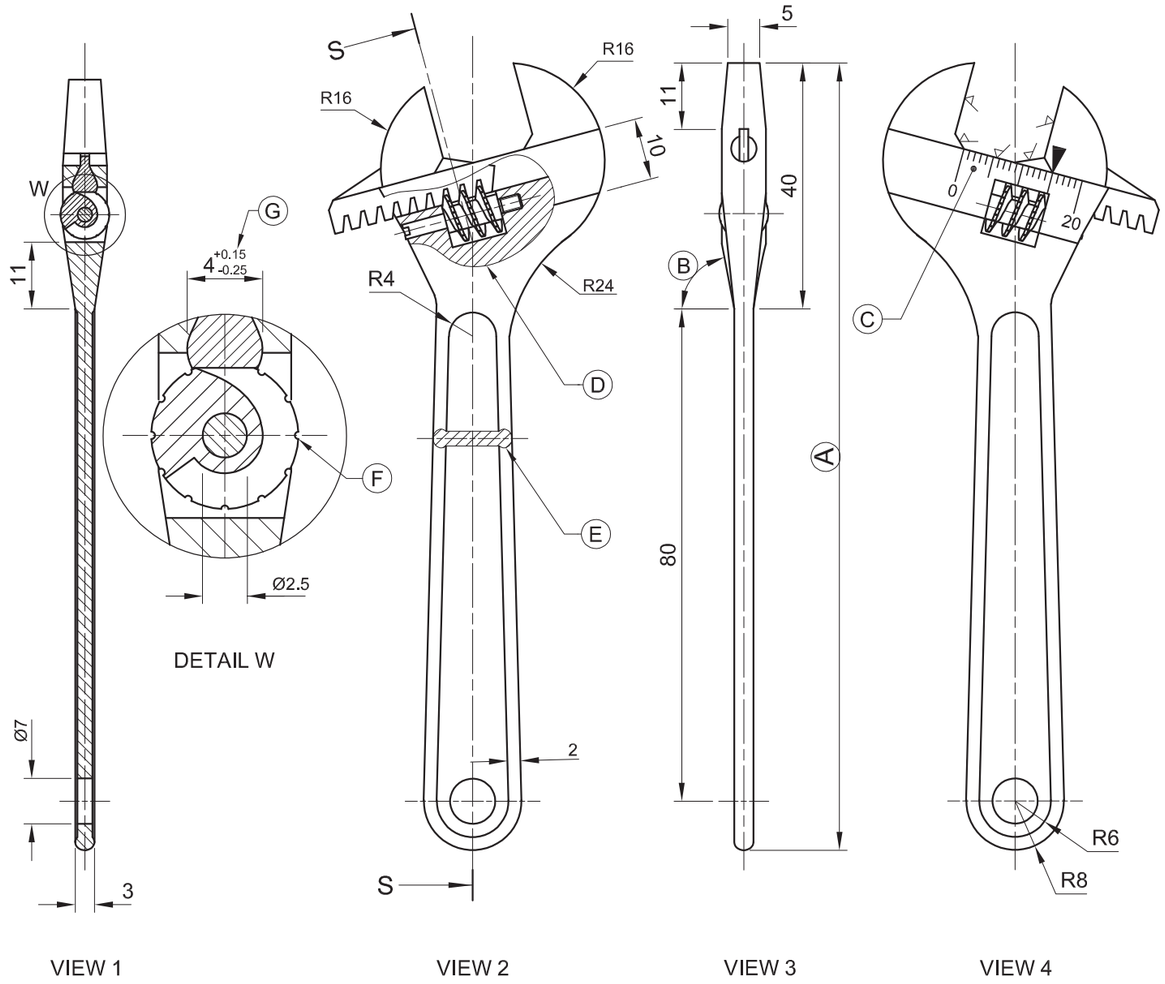
ANSWER 18: PROJECTION SYMBOL

EXAMINATION NUMBER

EXAMINATION NUMBER 2

STAPLE





PARTS LIST			
	PART	QUANTITY	MATERIAL
1	FIXED JAW AND HANDLE	1	CHROME VANADIUM CASTING
2	ADJUSTABLE JAW	1	TOOL STEEL
3	WORM SCREW	1	EN 19
4	WORM SHAFT	1	TOOL STEEL

HEAT TREATMENT ON ALL JAWS	HARDENING
METHOD OF MACHINING	MILLING

DRAWING PROGRAM: AUTOCAD 2017	SCALE 1 : 1
ALL UNSPECIFIED RADII ARE R2.	
APPROVED: STEYN	DATE: 2017-02-28
CHECKED: JOHN	DATE: 2017-02-10
DRAWN: WERNER	DATE: 2017-01-08

TITLE

SHIFTING SPANNER

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Five views and a detailed enlargement of a shifting spanner assembly, a parts list, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

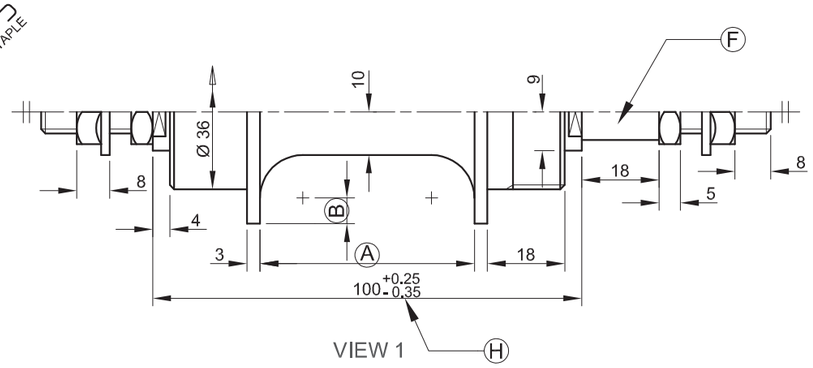
Instructions:
Complete the table below by neatly answering the questions which all refer to the accompanying drawing and the title block. **[28]**

	QUESTIONS	ANSWERS			
1	What is the title of the drawing?		1		
2	What scale is indicated for the drawing?		1		
3	What drawing program was used?		1		
4	On what date was the drawing drawn?		1		
5	Who approved the drawing?		1		
6	What is the radius of the unspecified curves?		1		
7	What material is used to manufacture the adjustable jaw?		1		
8	What type of heat treatment is required for the jaws?		1		
9	Which projection system has been used for the drawing?		1		
10	Determine the dimension at A.		1		
11	Measure the angle at B.		1		
12	What is the purpose of the measurements on the fixed jaw and handle at C?		2		
13	Name the type of section at D.		1		
14	Name the type of section at E.		1		
15	What is purpose of the grooves at F?		1		
16	If view 2 is the front view, what would view 4 be called?		1		
17	What is the purpose of the enlarged detailed view?		1		
18	What type of section resulted from cutting plane S-S?		1		
19	With reference to the tolerance, determine the minimum dimension at G.		2		
20	How many surfaces of the fixed jaw and handle must be machined?		1		
21	What direction of lay must be applied to the machined surfaces?		1		
22	In the space below (ANSWER 22), draw, in neat freehand, the conventional representation of a bearing on a section of a shaft.		5		
		TOTAL	**28**		

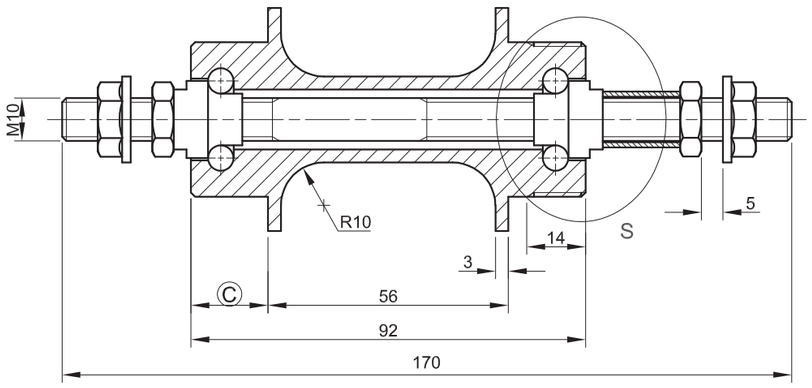
ANSWER 22: Conventional representation of a bearing on a section of a shaft

EXAMINATION NUMBER	
EXAMINATION NUMBER	2

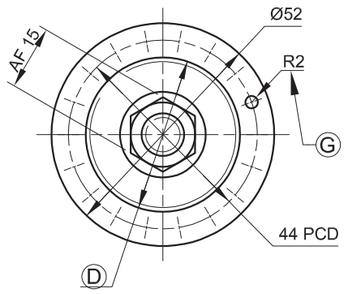
STAPLE



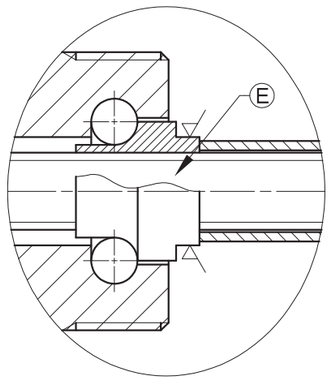
VIEW 1



VIEW 2



VIEW 3



DETAIL S

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Three views of a rear wheel hub assembly, a detailed enlargement, a parts list, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawings and the title block. **[30]**

	QUESTIONS	ANSWERS			
1	What is the title of the drawing?		1		
2	Which drawing program was used?		1		
3	What scale is indicated for the drawing?		1		
4	Who checked the drawing?		1		
5	What is the file name?		1		
6	What type of final finish is required?		1		
7	What material is used to manufacture the bearing nut?		1		
8	How many parts are there in the assembly?		1		
9	What is VIEW 3 called?		1		
10	Determine the complete dimensions at A: B: C: D:		4		
11	What does the abbreviation PCD stand for?		1		
12	What does the abbreviation AF stand for?		1		
13	Which convention is applied to VIEW 1?		1		
14	Name the type of section on the bearing nut at E.		1		
15	Refer to the parts list and identify the part at F.		1		
16	What type of machining is required?		1		
17	How many surfaces must be machined?		2		
18	How many R2 holes, as indicated at G, are there in the rear wheel hub?		1		
19	With reference to the tolerance, determine the minimum dimension at H.		2		
20	Insert the cutting plane on VIEW 3 and label it A-A.		3		
21	In the space below (ANSWER 21), draw, in neat freehand, ONE view that will indicate the convention for a square on a shaft or a flat face on a cylinder.		3		
		TOTAL	**30**		

ANSWER 21 - Convention for a square or a flat face

PARTS LIST			
PART		QUANTITY	MATERIAL
1	M10 SHAFT	1	MILD STEEL
2	BALL BEARINGS	16	STAINLESS STEEL
3	BEARING NUT	2	EN 19
4	M10 NUT	2	TOOL STEEL
5	M10 LOCKNUT	2	TOOL STEEL
6	SPACER	1	MILD STEEL
7	WHEEL HUB	1	MILD STEEL

APPROVED: SASHA	DATE: 13-11-2016
CHECKED: JOHN	DATE: 11-11-2016
DRAWN: WERNER	DATE: 16-10-2016
DRAWING PROGRAM: AUTOCAD	FILE NAME: BF 71116
HEAT TREATMENT: HARDENING	SCALE 2 : 3
FINAL FINISH: CHROME PLATING	MILLING

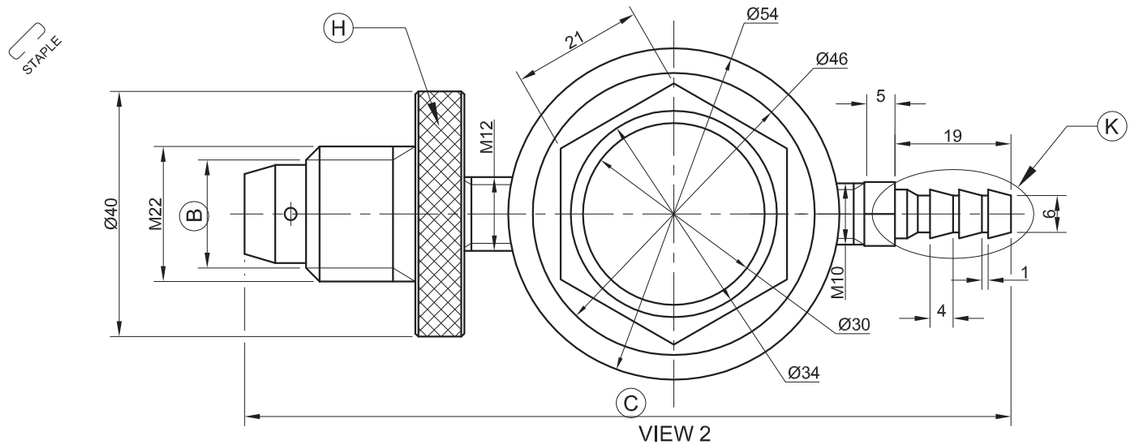
GP BICYCLES
SPARES AND ACCESSORIES

179 MILTON ST
Faraday Park
www.uniquebikes.co.za
☎ 016 123 4567

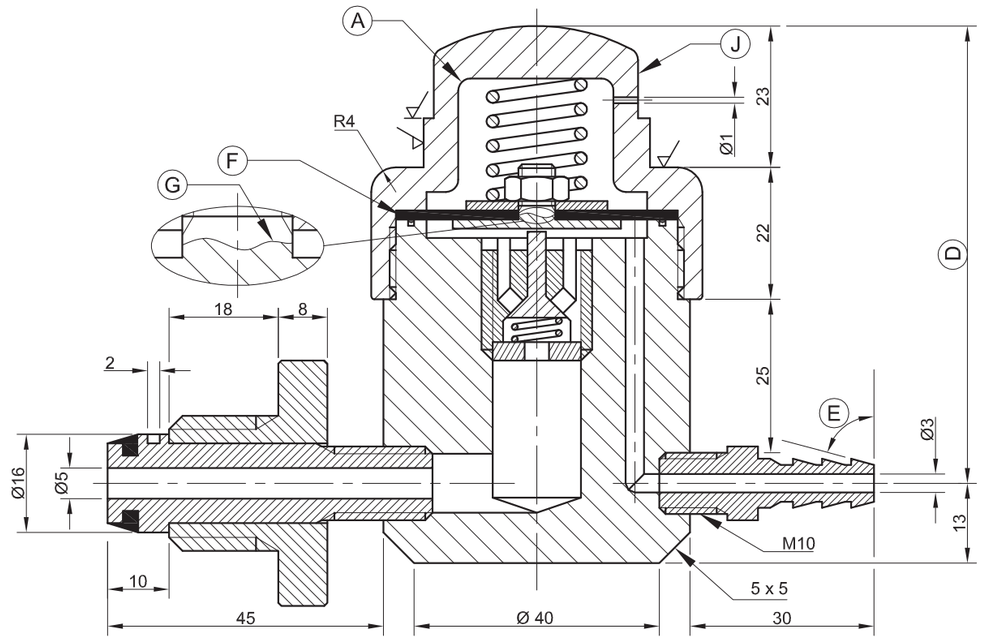
TITLE
REAR WHEEL HUB

EXAMINATION NUMBER

EXAMINATION NUMBER 2



VIEW 2



VIEW 1

PARTS LIST			
	PART	QUANTITY	MATERIAL
1	PRIMARY BASE	1	BRASS
2	INLET	1	BRASS
3	INLET SEAL	1	RUBBER
4	INLET SCREW	1	BRASS
5	VALVE ASSEMBLY	1	BRASS
6	VALVE SPRING	1	SPRING STEEL
7	DIAPHRAGM ASSEMBLY	1	STAINLESS STEEL
8	DIAPHRAGM	1	RUBBER
9	PRESSURE SPRING	1	SPRING STEEL
10	CAP	1	BRASS
11	OUTLET	1	BRASS

APPROVED: SOON	DATE: 2015-12-06
CHECKED: VERNON	DATE: 2015-11-10
DRAWN: WIKUS	DATE: 2015-10-31
DRAWING PROGRAMME: AUTOCAD 2016	SCALE 1 : 1
ALL UNSPECIFIED RADII ARE R2.	
METHOD OF MACHINING: MILLING	

*THE **ONE** GAS COMPANY*

75 AIR STREET
www.theonegas.co.za
☏ 012 357 8910

TITLE

GAS REGULATOR

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
An assembly drawing showing two views of a gas regulator assembly, a parts list, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawing and the title block. **[30]**

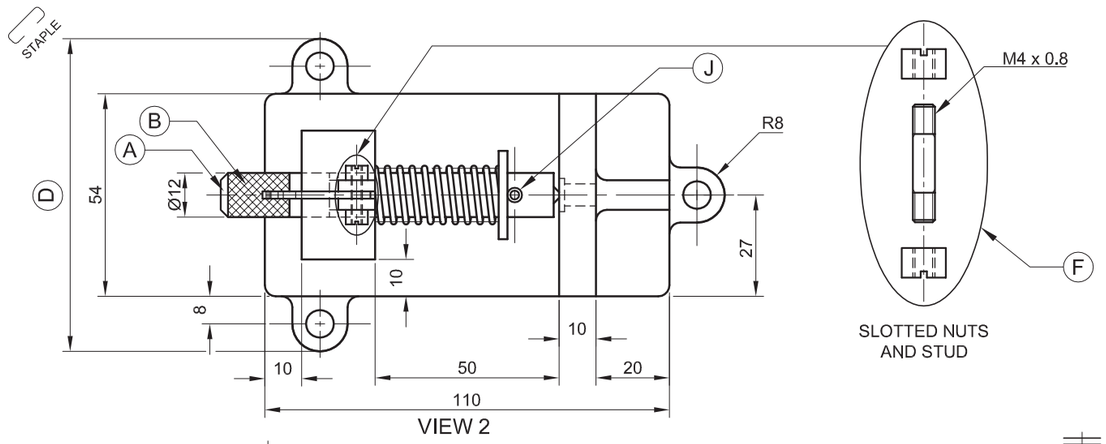
	QUESTIONS	ANSWERS			
1	What is the title of the drawing?		1		
2	What is the web address of the company?		1		
3	What method of machining is prescribed?		1		
4	Which drawing program was used to prepare the drawing?		1		
5	On what date was the drawing drawn?		1		
6	Who approved the drawing?		1		
7	What material is used to manufacture the seal?		1		
8	What is VIEW 1 called?		1		
9	Name the feature at A.		1		
10	Determine the complete dimensions at B: C: D:		3		
11	Measure the angle at E.		1		
12	Why is the part at F filled in solid?		1		
13	What is indicated by the feature at G?		1		
14	Name the type of finish at H.		1		
15	Refer to the parts list and identify the part at J.		1		
16	How many surfaces of the gas regulator assembly must be machined?		1		
17	Why is the feature at K tapered to one side only?		2		
18	Insert the cutting plane on VIEW 2 and label it S-S.		3		
19	In the space below (ANSWER 19), draw, in neat freehand, the convention for a coil spring.		3		
20	In the space below (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

ANSWER 19:
Convention for a coil spring

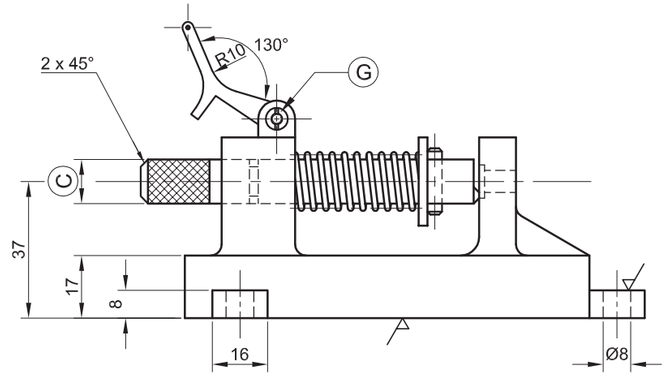
ANSWER 20:
Projection symbol

EXAMINATION NUMBER

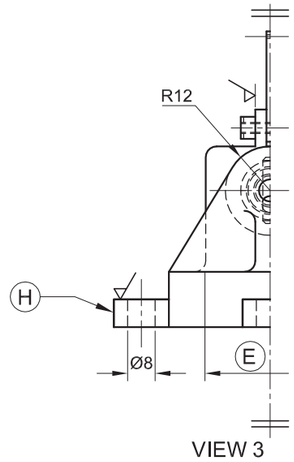
EXAMINATION NUMBER 2



VIEW 2

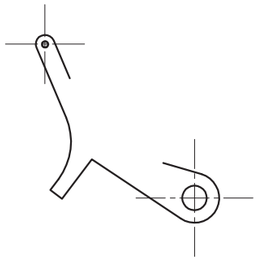


VIEW 1



VIEW 3

ANSWER 17:
Construction



PARTS LIST			
	PART	QUANTITY	MATERIAL
1	BASE	1	CAST IRON
2	STRIKING PIN	1	STAINLESS STEEL
3	COIL SPRING	1	SPRING STEEL
4	WASHER	1	STAINLESS STEEL
5	DOWEL PIN	1	SPRING STEEL
6	TRIGGER PLATE	1	STAINLESS STEEL
7	SLOTTED NUT	2	HIGH TENSILE STEEL
8	STUD	1	EN 21 STEEL

APPROVED: DELISE	DATE: 2015-10-31
CHECKED: FRANCU	DATE: 2015-10-15
DRAWN: CARLOS	DATE: 2015-10-12
DRAWING PROGRAMME: AUTOCAD 2016	SCALE 1 : 1
ALL UNSPECIFIED RADII ARE R3.	
TOLERANCE ON ALL DIMENSIONS: ± 0,25 mm	
SURFACE TREATMENT	

HOME SECURITY PRODUCTS

1 ZIRK BAARD STREET
PRETORIA
0001
www.homesecure.co.za
☏ 012 341 0810

TITLE

TRIGGER MECHANISM

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Three views of a trigger mechanism assembly, an enlarged view, a parts list, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

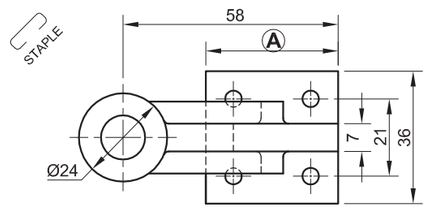
Instructions:
Complete the table below by neatly answering the questions, which refer to the accompanying drawings and the title block. **[30]**

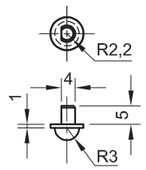
	QUESTIONS	ANSWERS			
1	What was Francu's responsibility?		1		
2	What drawing method was used to prepare the drawings?		1		
3	What scale is indicated for the drawing?		1		
4	What should all the unspecified radii be?		1		
5	What material is used to manufacture the striking pin?		1		
6	Name the type of finish at A.		1		
7	Name the type of finish at B.		1		
8	What is VIEW 3 called?		1		
9	Determine the complete dimensions at C: D: E:		3		
10	How many parts make up the trigger mechanism assembly?		1		
11	What is the purpose of the enlarged view at F?		1		
12	How many surfaces need to be machined?		1		
13	What direction of lay must be applied to the machined surfaces?		1		
14	What is the screw thread specification of the stud nut at G?		2		
15	With reference to the tolerance, determine the maximum height of the feature at H.		2		
16	Referring to the parts list, identify the part at J.		1		
17	In the space above the parts list (ANSWER 17), complete the view of the trigger plate by neatly constructing the R10 fillet. Show ALL construction.		3		
18	In the space below (ANSWER 18), draw, in neat freehand, the convention for a coil spring.		3		
19	In the space below (ANSWER 19), draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

ANSWER 18:
Convention for coil spring.

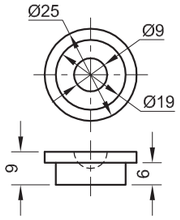
ANSWER 19:
Projection symbol

EXAMINATION NUMBER	
EXAMINATION NUMBER	2

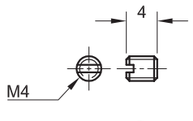




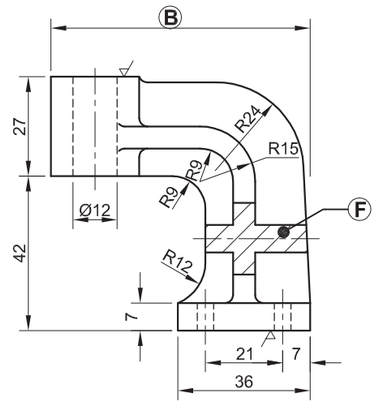
PUNCH



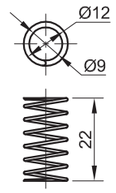
DIE



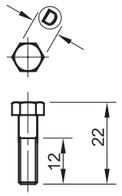
PART E



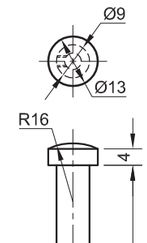
ARM



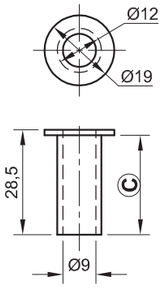
SPRING



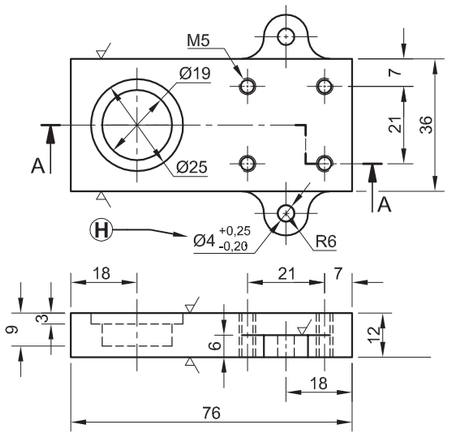
M5 BOLT



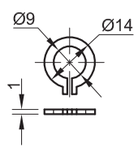
PIN



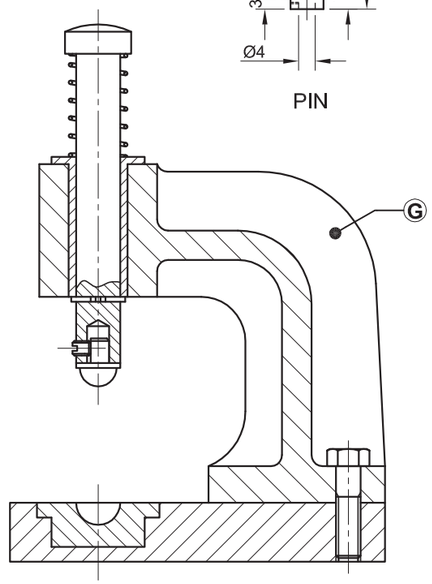
BUSH



BASE PLATE



CIRCLIP



SECTION AA

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Drawings of the parts of a punch, a sectional view of the punch assembly, a title block and a table of questions. The drawings have not been prepared according to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying detailed drawings and the title block. **[30]**

	QUESTIONS	ANSWERS			
1	On what date was the drawing checked?		1		
2	In which town is the engineering company situated?		1		
3	In which SI unit are the dimensions presented?		1		
4	What type of heat treatment is required?		1		
5	What is the file name?		1		
6	What material is used to manufacture the punch?		1		
7	On what date was the last revision made?		1		
8	How many surfaces require machining?		1		
9	What type of section is shown on the base plate?		1		
10	Determine the dimensions at: A: B: C: D:		4		
11	What is part E called?		1		
12	What type of section is shown at F on the arm?		1		
13	How many M5 bolts will be used to attach the arm to the base plate?		1		
14	What is the thickness of the feature at G?		1		
15	What is the purpose of the circlip in the assembly?		2		
16	With reference to the tolerance, determine the minimum size of the hole at H.		2		
17	With reference to the tolerance, determine the maximum size of the hole at H.		2		
18	In the box below (ANSWER 18), draw, in neat freehand, the symbol for the projection system used.		4		
19	In the box below (ANSWER 19), draw, in neat freehand, the convention of a spring.		3		
		TOTAL	**30**		

DATE	CHANGED BY	REVISION DESCRIPTION	No.
22/04/2015	ANDREW	INSERT CIRCLIP	3
16/04/2015	ANDREW	INSERT GRUB SCREW	2
16/03/2015	ANDREW	CHANGE BUSH	1

DRAWING SET: 4 OF 5	DRAWN: PETER	07/03/2015
DRAWING PROGRAM: AutoCAD 2014	CHECKED: JOHN	13/03/2015
DRAWING №. PUNCH/34/2015	APPROVED: ILSE	29/05/2015
FILE NAME: punch3.dwg	MATERIAL: CAST IRON	
UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN MILLIMETRES WITH A TOLERANCE OF 0,25.	HEAT TREATMENT: TEMPER	
	SCALE 2 : 1	
FOR SURFACE FINISHES	QUANTITY: 200	

PUNCH

WEST COAST
ENGINEERS
(SA) (Pty) Ltd

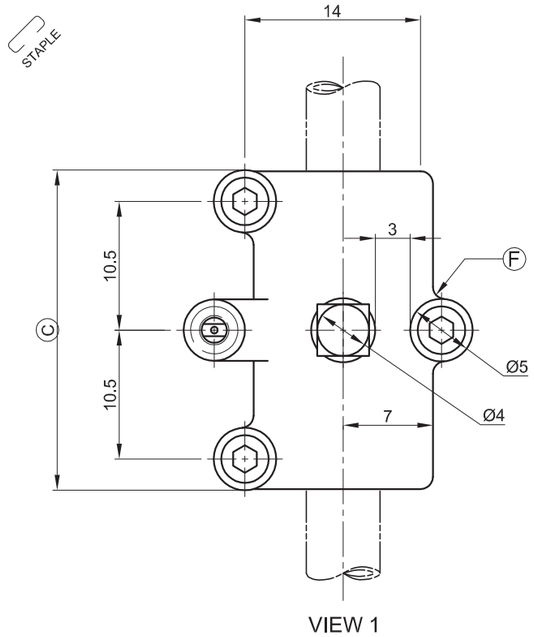
15 MAIN ROAD
VELDDRIFT
7365
www.wce.co.za
☎ 022 959 5432

ANSWER 18

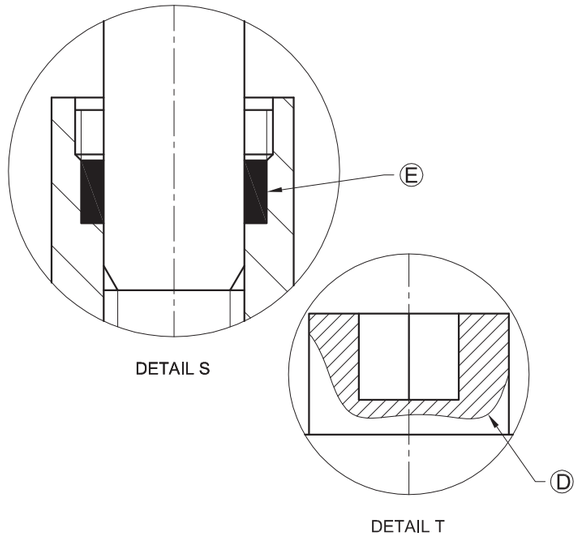
ANSWER 19

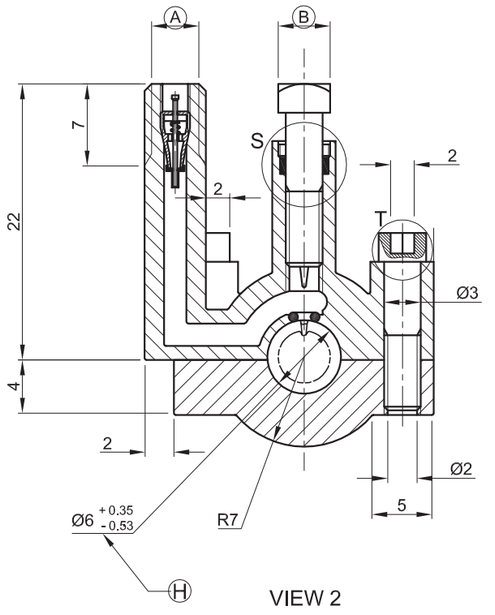
EXAMINATION NUMBER

EXAMINATION NUMBER 2

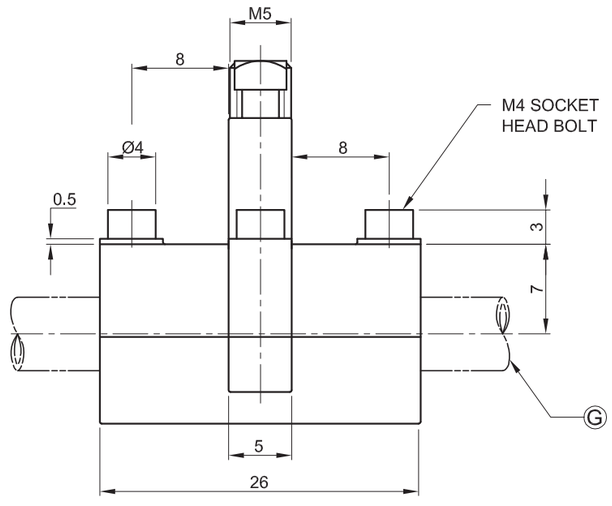


VIEW 1





VIEW 2



VIEW 3

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:

Three views and two detailed enlargements of a tapping valve assembly, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:

Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and the title block. **[30]**

	QUESTIONS	ANSWERS			
1	What is the title of the assembly?		1		
2	On what date was the drawing drawn?		1		
3	What is the drawing number?		1		
4	What scale is indicated for the drawing?		1		
5	Which drawing program was used?		1		
6	Who approved the drawing?		1		
7	What material is used to manufacture the main base?		1		
8	What would VIEW 2 be called?		1		
9	How many socket head bolts are there in the assembly?		1		
10	Give the complete dimensions at: A : B : C :		3		
11	Name the feature at F.		1		
12	Name the type of section at D.		1		
13	Why is the component at E filled in solid?		1		
14	What is the total height of the assembly?		1		
15	What is the purpose of the two enlarged detailed views?		2		
16	What is indicated by the convention at G?		1		
17	With reference to the tolerance, determine the maximum dimension at H?		2		
18	With reference to the tolerance, determine the minimum dimension at H?		2		
19	Insert the cutting plane on VIEW 3 and label it A-A.		3		
20	In the space provided below, draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

PARTS LIST

	PART	QUANTITY	MATERIAL
1	VALVE ASSEMBLY	1	REF: DETAILED DRAWING
2	SOCKET HEAD BOLT	3	TOOL STEEL
3	SQUARE BOLT WITH PUNCH	1	TOOL STEEL
4	MAIN BASE	1	PEWTER
5	CAP	1	PEWTER
6	O-RING	1	RUBBER
7	O-SEAL	1	RUBBER

FILE NAME: RCO/VK 0002.dwg

DRAWING No. 2015 - A - 005

ALL DIMENSIONS ARE IN MILLIMETRES.

DRAWING PROGRAM: AUTOCAD 2015

MATERIALS: STEEL, PEWTER AND RUBBER

TITLE: TAPPING VALVE

APPROVED:	ANDREW BRAND	2015/01/23
CHECKED:	SOON DENTON	2015/01/16
DRAWN:	CHRISTI GREEF	2015/01/05

ReCO REFRIGERATION

15 EDISON BLVD
INDUSTRIAL PARK
1911

TAP VALVE TO BE USED FOR TAPPING OF 134a, R11, R22 AND 501 REFRIGERANTS IN COPPER PIPE ONLY

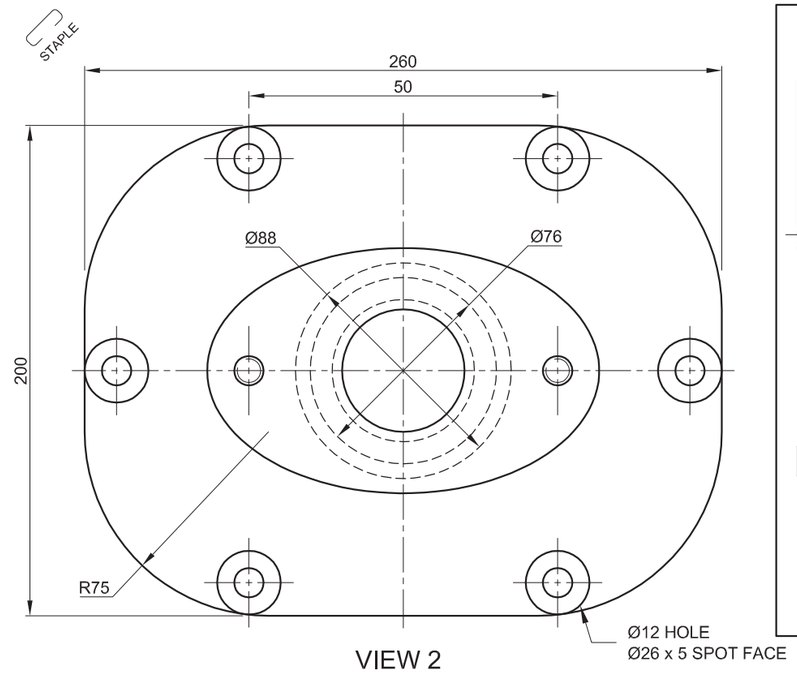
SCALE 2 : 1

ANSWER 20

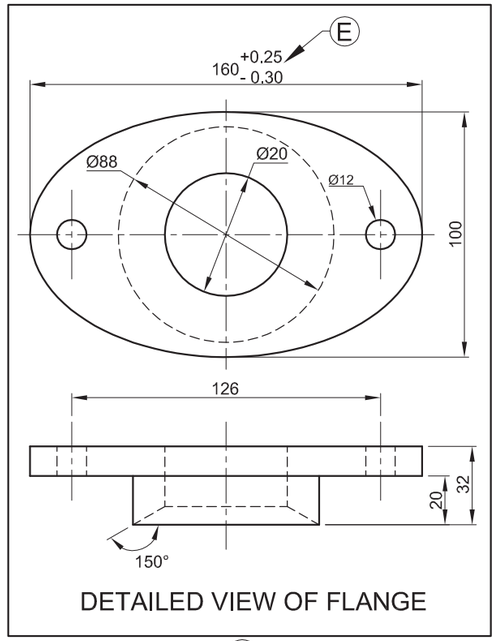
SYMBOL

EXAMINATION NUMBER

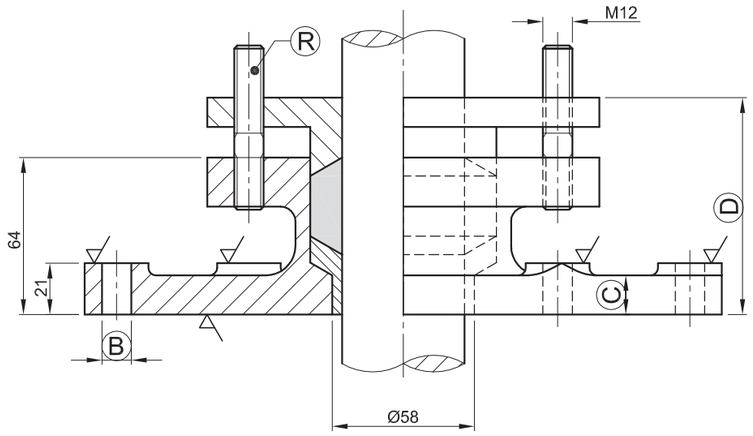
EXAMINATION NUMBER 2



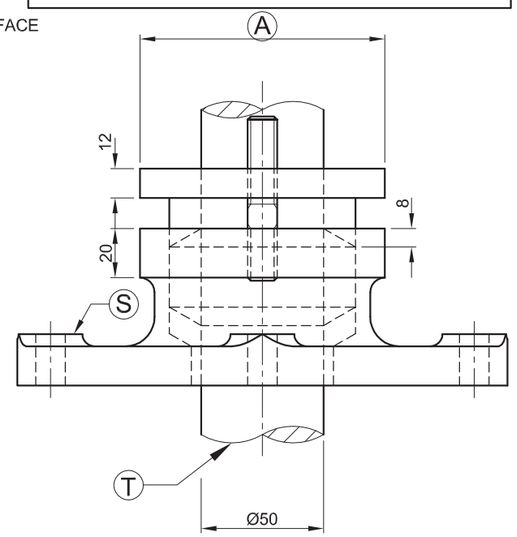
VIEW 2



DETAILED VIEW OF FLANGE



VIEW 1



VIEW 3

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 drawings have not been prepared to the indicated scale.

Instructions:

Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and the title block. **[30]**

	QUESTIONS	ANSWERS			
1	On what date was the drawing approved?		1		
2	What is the title of the assembly?		1		
3	What scale is indicated for the drawing?		1		
4	What material is used to manufacture the bush?		1		
5	On what date was the revision done?		1		
6	What is the drawing number?		1		
7	What would VIEW 3 be called?		1		
8	What type of section is shown in VIEW 1?		1		
9	What part is used to protect the flange surface when the nut is being tightened?		1		
10	Name the part at R.		1		
11	Name the feature at S.		1		
12	Name the feature at T.		1		
13	How many surfaces need to be machined?		1		
14	Give the complete dimensions at: A B		2		
15	Determine the complete dimensions at: C D		4		
16	With reference to the tolerance, determine the maximum dimension at E.		2		
17	With reference to the tolerance, determine the minimum dimension at E.		2		
18	Insert the cutting plane on VIEW 3 and label it A-A.		3		
19	In the space provided below, draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

ALL DIMENSIONS ARE IN MILLIMETRES	SCALE: 1 : 2
DRAWING PROGRAM: AUTOCAD 2013	FINISH: POLISHED
FILE NAME: ANAS15.dwg	QUANTITY: 325 UNITS
DRAWING No. BG-15/4	MACHINING: MILLING

UNLESS OTHERWISE SPECIFIED, ALL TOLERANCES ON DIMENSIONS ARE ± 0,15. ALL UNSPECIFIED RADII ARE R3.

PEWIJO
ENGINEERING

15 FABRICIA ROAD
KLISSERVILLE
KIMBERLEY
8301
☎ 051 6273 849

TITLE

BOX AND GLAND

2.	
1. INSERT SPOT FACE	2014/02/03
REVISIONS	**DATE**
DRAWN: ALFA	2014/01/01
CHECKED: BRAVO	2014/02/02
APPROVED: ZERO	2014/03/03

PARTS LIST

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

ANSWER 19

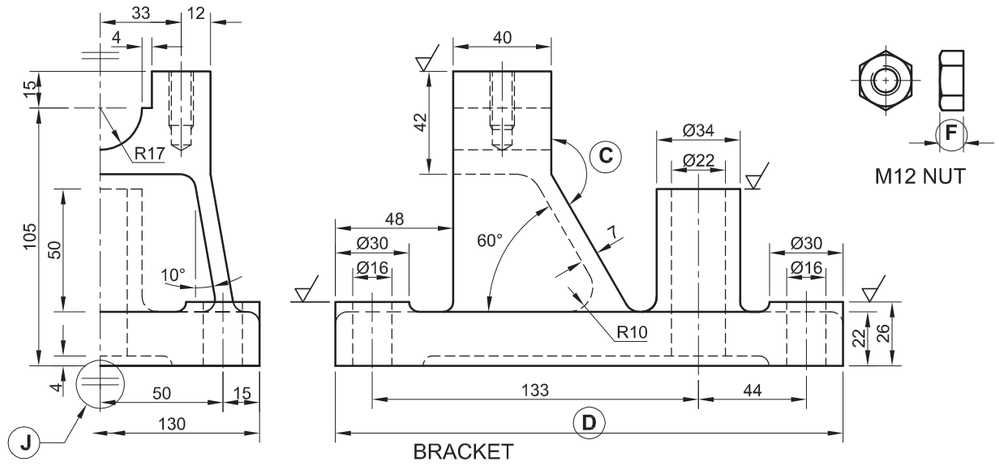
SYMBOL

EXAMINATION NUMBER

EXAMINATION NUMBER 2

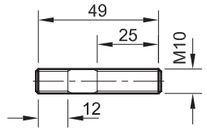
Please turn over

STAPLE

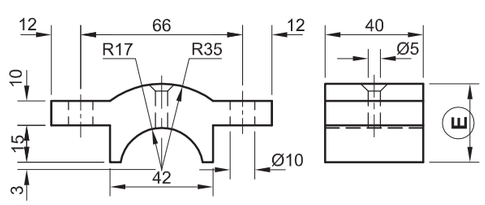


BRACKET

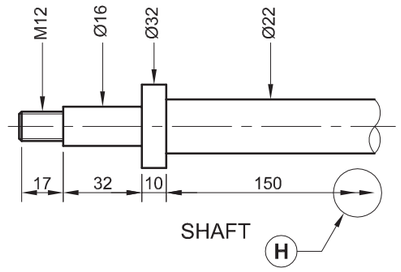
M12 NUT



PART G

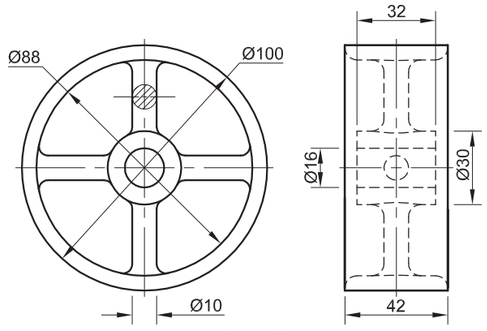


BEARING CAP

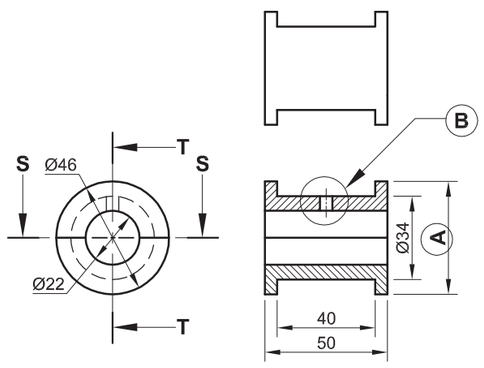


SHAFT

ANSWER 9



PULLEY



BEARING HALVES

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A drawing showing orthographic views of the parts of a bearing bracket assembly, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawing and the title block. **[30]**

	QUESTIONS	ANSWERS			
1	On what date was the drawing drawn?		1		
2	Who approved the drawing?		1		
3	What is the drawing number?		1		
4	Who was responsible for the revision?		1		
5	If the drawing was drawn to scale 1 : 1, what would the dimension at A read?		1		
6	What heat treatment is required?		1		
7	What type of machining is required?		1		
8	What is the tolerance allowed on dimensions?		1		
9	Complete, in neat freehand, the sectional top view of the BEARING HALVES on cutting plane S-S.		3		
10	Name the encircled feature at B.		1		
11	What type of section is shown on the PULLEY?		1		
12	Give the complete dimensions at: C D E		3		
13	Determine the dimension at F. Show ALL calculations.		2		
14	Give the correct name of PART G.		1		
15	What is indicated by the encircled convention at H?		1		
16	What is indicated by the encircled convention at J?		1		
17	How many surfaces on the BRACKET require machining?		1		
18	What is the purpose of the two shoulders on the BEARING HALVES?		2		
19	Name a part that can be added to the assembly to ensure that the momentum is effectively carried over from the PULLEY to the SHAFT?		2		
20	In the space below, draw, in neat freehand, the symbol for the projection system used.		4		
		TOTAL	**30**		

05/11	P MOOLMAN	INSERT OIL HOLE	1
DATE	REVISED BY	DESCRIPTION OF REVISION	№

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ± 0,3.
ALL UNSPECIFIED RADII ARE 6 mm.

0.05 MILLING

DRAWING PROGRAMME: AUTOCAD

MATERIAL: CAST IRON

FILE NAME: ANA0113.dwg

HEAT TREATMENT: NORMALISE

DRAWING No. 01-NOV-13

APPROVED BY: K CIZAKE

DATE: 2013-12-04

CHECKED BY: W GOEDE

DATE: 2013-11-15

DRAWN BY: J STANDER

DATE: 2013-11-04

SCALE 1 : 2

ANSWER 20

JPW DEVELOPMENTS

123 STRUBEN STR
Pretoria
www.jpwdevelopments.co.za
☏ 012 345 6789

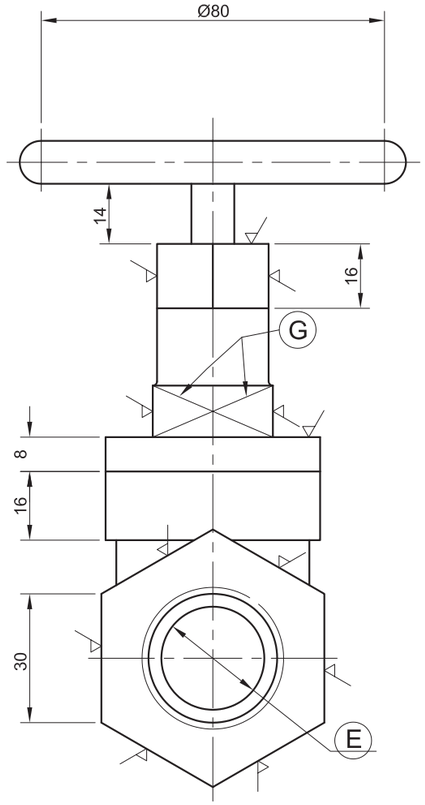
TITLE

BEARING BRACKET

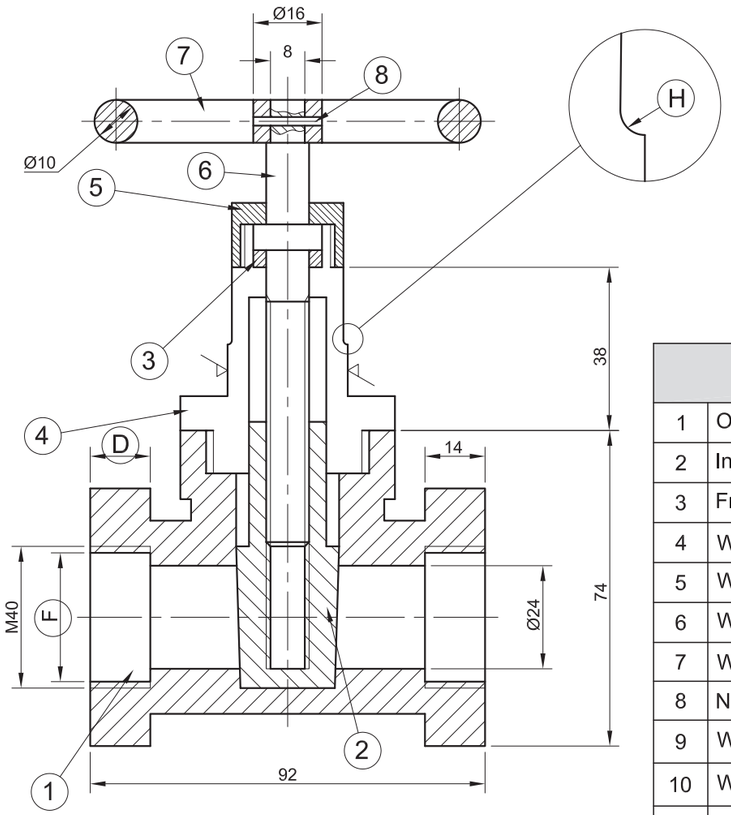
EXAMINATION NUMBER

EXAMINATION NUMBER 2

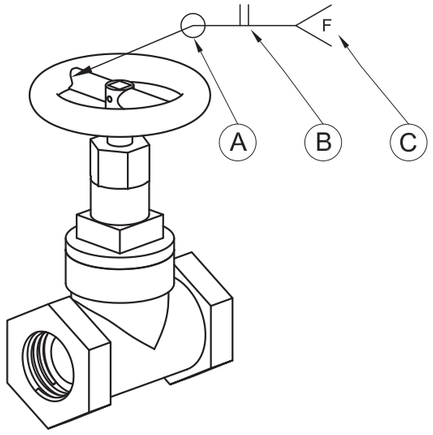
STAPLE



VIEW 2



VIEW 1



QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A front and the left view of a brass tap assembly in third-angle orthographic projection, an isometric drawing of the brass tap, a parts list, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and the title block. **[29]**

	QUESTIONS		ANSWERS			
1	On what date was the drawing prepared?			1		
2	In which city is the manufacturing company situated?			1		
3	From what material is the seal (part 3) made ?			1		
4	Who made the revision?			1		
5	What is the file name of the drawing?			1		
6	What scale is indicated for the drawing?			1		
7	What would VIEW 1 be called?			1		
8	Name the feature at H.			1		
9	What is indicated by feature G?			1		
10	What is the total height of the brass tap?			1		
11	How many parts make up the brass tap?			1		
12	Determine the complete dimensions at: D. E. F.			3		
13	With reference to the welding symbol, name the following elements.	A		1		
		B		1		
		C		1		
14	What is the purpose of the pin (part 8)?			1		
15	How many surfaces must be machined?			1		
16	Add, in neat freehand, suitable hatching to the shaft guide (part 4) on view 1.			3		
17	Insert the cutting plane on **VIEW 2** and label it S-S.			3		
18	In the box below (answer 18), neatly draw, in freehand, the symbol for the projection system used.			4		
	TOTAL			**29**		

PARTS LIST

	PART	QUANTITY	MATERIAL
1.	TAP BODY	1	BRASS
2.	WEDGE	1	BRASS
3.	SEAL	1	RUBBER
4.	SHAFT GUIDE	1	BRASS
5.	GUIDE NUT	1	BRASS
6.	SHAFT	1	STAINLESS STEEL
7.	HAND WHEEL	1	STEEL
8.	PIN	1	STEEL

ANSWER 18

DATE	REVISED BY	REVISION DESCRIPTION	№
2013-09-26	AFROX	WELDING DETAIL	1

GRINDING 0,02

DRAWING PROGRAMME: AUTOCAD

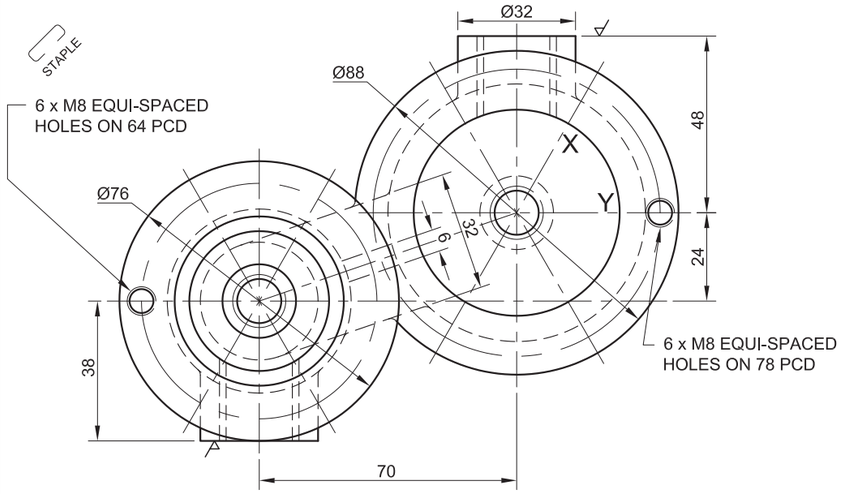
JPW DEVELOPMENTS
123 STRUBEN STR
Pretoria
www.jpwdevelopments.co.za
☏ 012 345 6789

DRAWING No. 01-225-BT	FILE NAME: ME31.dwg
APPROVED BY : J CLAASEN	DATE: 2013-09-20
CHECKED BY: L VAN ZYL	DATE: 2013-09-19
DRAWN BY: H SHADER	DATE: 2013-09-02
SCALE: 1 : 1	

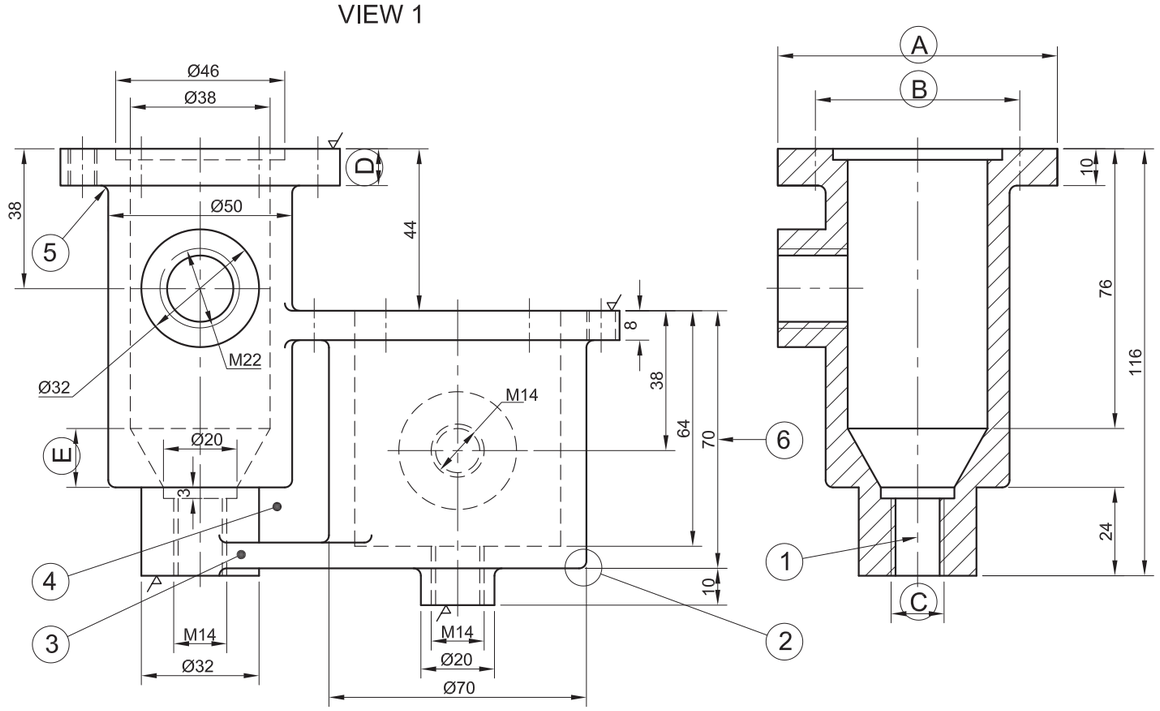
TITLE
BRASS TAP

EXAMINATION NUMBER

EXAMINATION NUMBER 2



VIEW 1



VIEW 2 VIEW 3

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A detailed drawing showing THREE views of a carburettor body, 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 questions, which all refer to the accompanying drawing and title block. **[30]**

QUESTIONS		ANSWERS		
1	How many carburettor bodies must be produced?		1	
2	From what material is the carburettor body manufactured?		1	
3	What is the file name of the drawing?		1	
4	On what date was the drawing checked?		1	
5	In which province is the engineering company situated?		1	
6	Name the line at 1.		1	
7	Name the encircled feature at 2.		1	
8	What is the width of the feature at 3?		1	
9	Name the feature at 4.		1	
10	What is the radius of the feature at 5?		1	
11	What would the dimension at 6 be if a drawing scale of 1 : 1 was used?		1	
12	What is the angle between the centre lines marked X and Y in VIEW 1?		1	
13	What type of section is shown in VIEW 3?		1	
14	How many threaded holes are there on the carburettor body?		1	
15	What does the abbreviation PCD stand for?		1	
16	How many surfaces need to be machined?		1	
17	What direction of lay is indicated by the machining symbol?		2	
18	Insert the cutting plane for VIEW 3. Label the cutting plane A-A.		3	
19	Determine the complete dimensions at: A B C D E		5	
20	In the space provided in the title block (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		4	
		TOTAL	**30**	

PROGRAMME: AUTOCAD	MATERIAL: ALUMINIUM	SCALE: 1 : 5
FILE NAME: 562 CB - SS.dwg	QUANTITY: 18000 UNITS	ALL UNSPECIFIED RADII ARE 2,5 mm.
DRAWING No. YAP 356	TREATMENT: NORMALISE	ALL DIMENSIONS ARE IN MILLIMETRES.
REMOVE ALL BURRS AND SHARP EDGES.	MACHINED 0,05 C	ANSWER 20

DYNAMIC ENGINEERING
1051 BRAKEN ROAD
LITTLE FALLS
GAUTENG
1735
☎ 011 355 1550

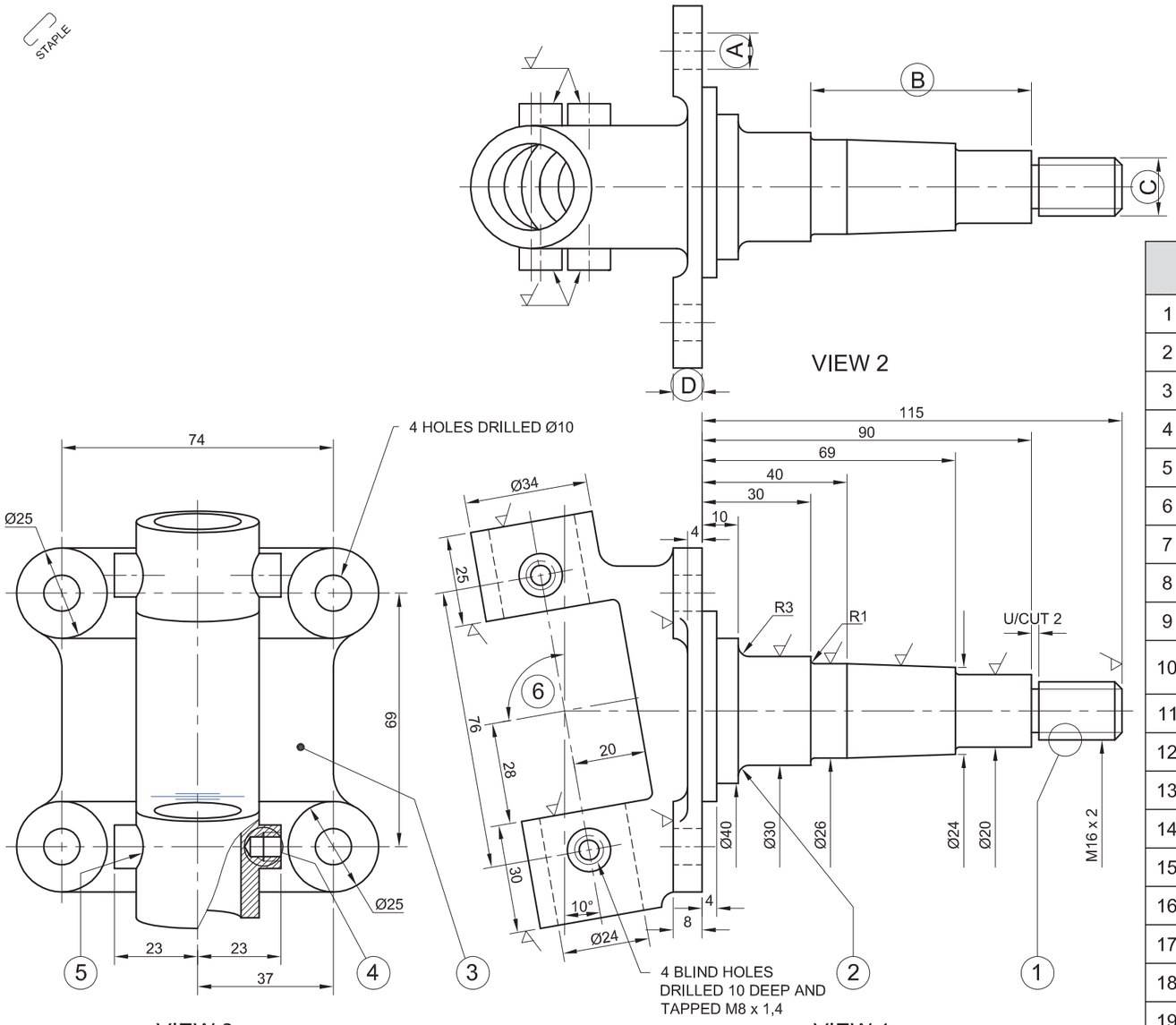
TITLE
CARBURETTOR BODY

REVISIONS	DATE
DRAWN: MARYNA	2013/09/10
CHECKED: ANDY	2013/10/12
APPROVED: MVE	2013/10/22

SYMBOL

EXAMINATION NUMBER	
EXAMINATION NUMBER	2

STAPLE



QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A detailed drawing of a front stub axle, 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 questions, which all refer to the accompanying drawing and the title block. **[30]**

	QUESTIONS	ANSWERS		
1	On what date was the drawing checked?		1	
2	What is the name of the engineering firm?		1	
3	What scale is indicated for the drawing?		1	
4	What treatment must the stub axles undergo?		1	
5	On what date was the axle angle revised?		1	
6	What is the drawing number?		1	
7	What would VIEW 1 be called?		1	
8	How many surfaces need to be machined?		1	
9	How many threaded holes are there in the stub axle?		1	
10	What production method is required to achieve the finish on the stub axle?		1	
11	What type of section is shown in VIEW 3?		1	
12	Name the encircled feature at 1.		1	
13	Name the feature at 2.		1	
14	What is the thickness of the feature at 3?		1	
15	Name the encircled feature at 4.		2	
16	Name the type of curve at 5.		2	
17	Determine the angle between the centre lines at 6.		2	
18	What is the depth of the undercut?		2	
19	Determine the complete dimensions at: A B C D		4	
20	In the space provided in the title block (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		4	
		TOTAL	**30**	

ALL UNSPECIFIED RADII ARE 5 mm.	
ALL DIMENSIONS ARE IN MILLIMETRES.	SCALE: 1 : 2
DRAWING PROGRAM: AUTOCAD 2008	MATERIAL: CAST IRON
FILE NAME: T-SA FS AXLE.dwg	QUANTITY: 9 500 UNITS
DRAWING No. AWF 3628 W	TREATMENT: HARDENING
REMOVE ALL BURRS AND SHARP EDGES.	TURNING 0,25

PRECISION ENGINEERING
54 SOMTSEU ROAD
KINGSMEAD
DURBAN
4000
031 335 1600

TITLE
FRONT STUB AXLE

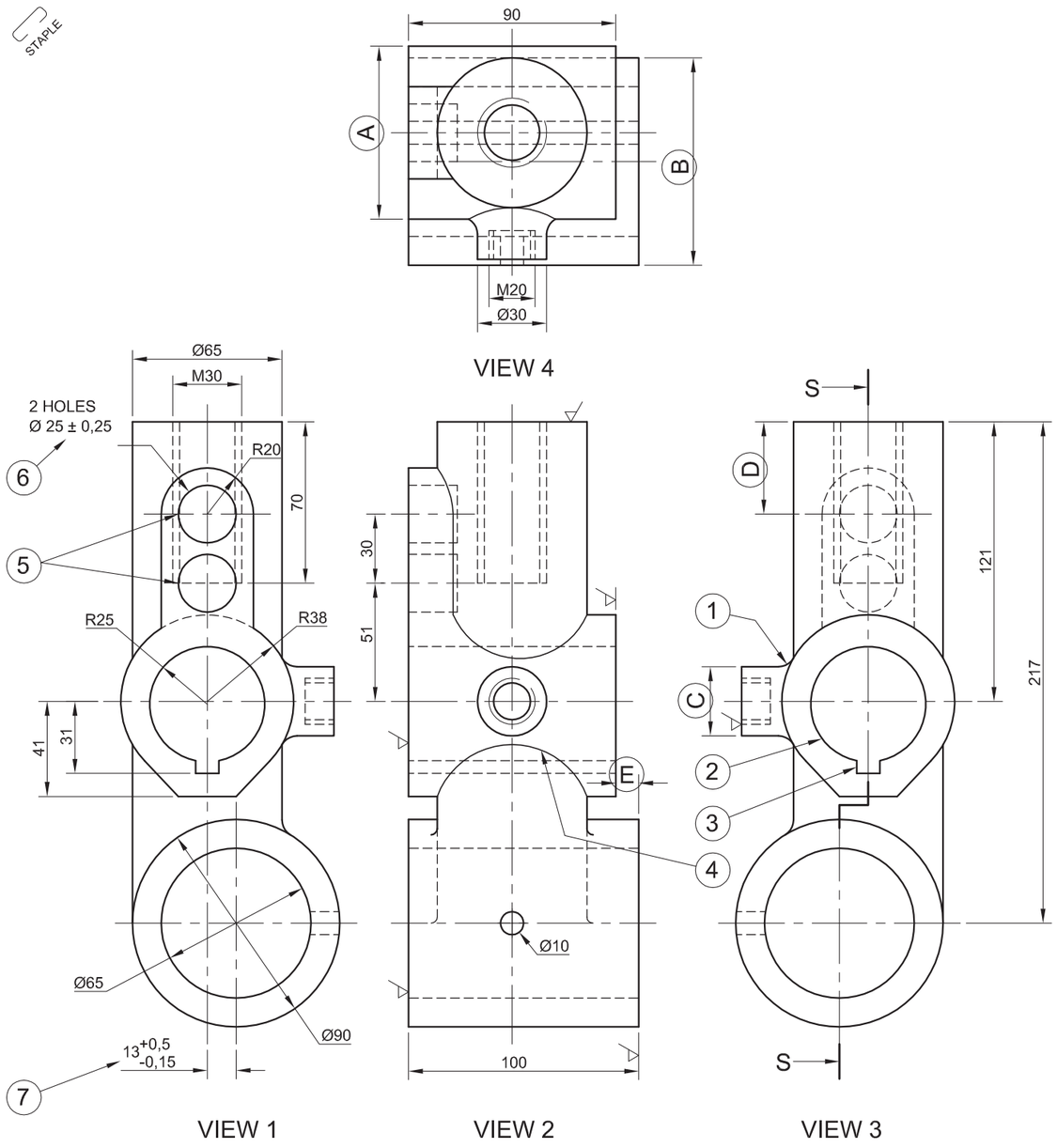
ANSWER 20

REVISIONS	DATE
2. AXLE HOLES	2013/05/16
1. AXLE ANGLE	2013/05/15
DRAWN: JVL	2013/04/10
CHECKED: KC	2013/05/12
APPROVED: SC	2013/05/22

SYMBOL

EXAMINATION NUMBER	
EXAMINATION NUMBER	2

STAPLE



QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A detailed drawing showing FOUR views of a connector, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying detailed drawing and the title block. **[30]**

	QUESTIONS	ANSWERS		
1	On what date was the drawing approved?		½	
2	What is the file name of the drawing?		½	
3	What was the nature of the first revision?		½	
4	What material is the connector made of?		½	
5	What is the radius of the unspecified curves?		½	
6	How many surfaces require machining?		½	
7	What method must be used to produce the machined surfaces?		1	
8	What does N4 on the machining symbol represent?		1	
9	Name the curve at 1.		1	
10	What is the diameter of the circle at 2?		1	
11	Name the slot at 3.		1	
12	Name the curve at 4.		1	
13	What is the tolerance on the unspecified dimensions?		1	
14	What is the distance between the centres of the two holes at 5?		1	
15	How many threaded holes are there on the connector?		1	
16	What is the total height of the connector?		1	
17	What would VIEW 4 be called?		1	
18	What type of sectional view would result from cutting plane SS?		1	
19	Determine the complete dimensions: A B C D E		5	
20	What is the upper tolerance of the dimension at 6?		2	
21	What is the upper and lower tolerance of the dimension at 7?		4	
22	In the box below (ANSWER 22), draw, in neat freehand, the symbol for the projection system used.		4	
	TOTAL		**30**	

2012-08-06	MARYNA	ADD MACHINING SYMBOLS	2
2012-08-04	MARYNA	INCREASE TOLERANCE	1
DATE	REVISED BY	REVISION DESCRIPTION	№

ALL DIMENSIONS ARE IN MILLIMETRES.
ALL UNSPECIFIED RADII ARE 2,5 mm.

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ± 0,3.

N4 MILLING =

QUANTITY: 76

DRAWN BY: NOLWAZI — DATE: 2012-07-15

CHECKED BY: AKHEEL — DATE: 2012-07-18

APPROVED BY: DANIEL — DATE: 2012-07-19

MATERIAL: CAST IRON — FILE NAME: UFF 335.dwg

HEAT TREATMENT: NONE — DRAWING No. 12-0967-msc

SCALE: 1 : 2

PRECISION
ENGINEERING WORKS
15 DYER STREET
EAST LONDON
www.precision.co.za
043 645 7820

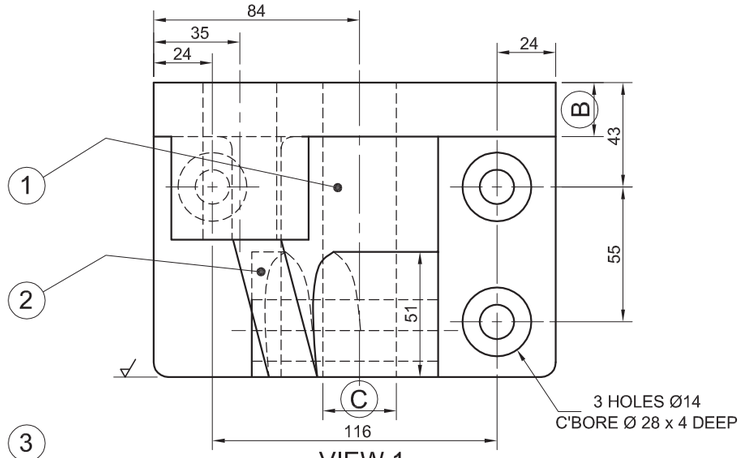
TITLE
CONNECTOR

ANSWER 22

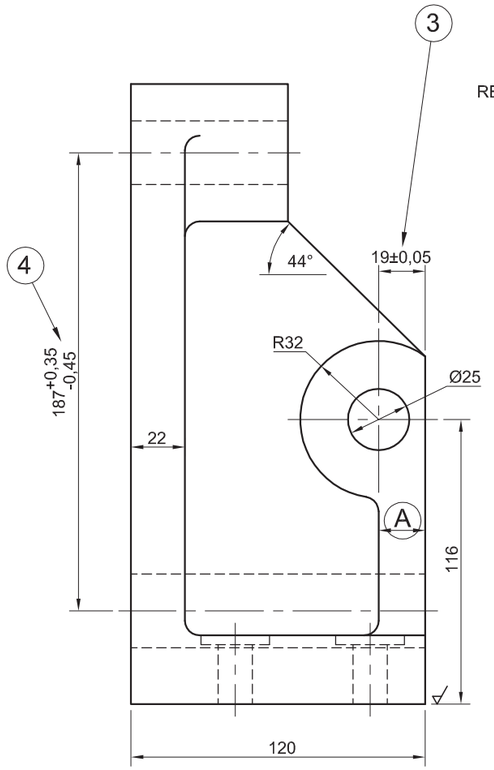
EXAMINATION NUMBER

EXAMINATION NUMBER 2

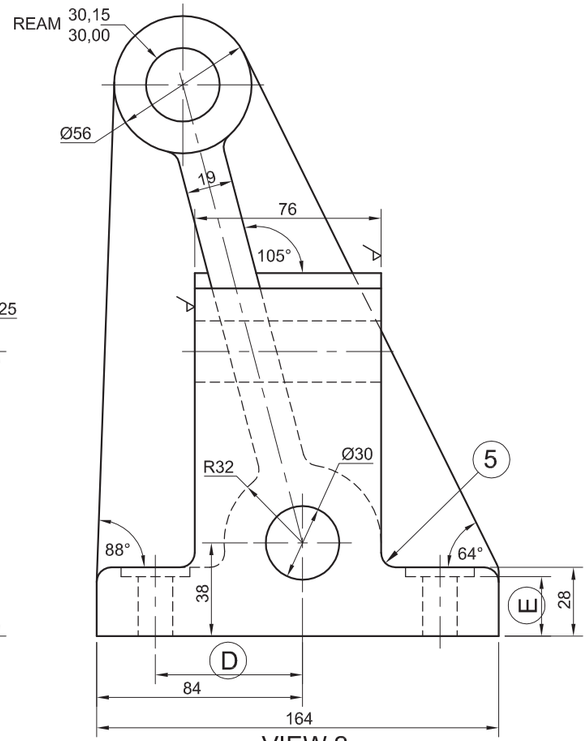
STAPLE



VIEW 1



VIEW 3



VIEW 2

ALL DIMENSIONS ARE IN MILLIMETRES.

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A detailed drawing showing THREE views of an ejector base, 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 questions, which all refer to the accompanying detailed drawing and the title block. **[30]**

	QUESTIONS	ANSWERS		
1	Who approved the drawing?		½	
2	What SI unit are the dimensions presented in?		½	
3	When was the drawing checked?		½	
4	Who was responsible for the revision?		½	
5	What drawing method was used to prepare the drawing?		½	
6	How many ejector bases must be manufactured?		½	
7	How many surfaces require machining?		1	
8	What is the roughness value of the machined surfaces?		1	
9	What method must be used to produce the machined surfaces?		1	
10	What is the angle to the horizontal of the surface at 1?		1	
11	What is the angle to the horizontal of the surface at 2?		1	
12	How many holes are there in the casting?		1	
13	What does the abbreviation *C'BORE* stand for?		1	
14	What would VIEW 2 be called?		1	
15	What is the radius of the fillet at 5?		1	
16	Determine the complete dimensions at: A B C D E		5	
17	What is the total height of the ejector base?		3	
18	What is the upper tolerance of the dimension at 3?		2	
19	What is the upper and lower tolerance of the dimension at 4?		4	
20	In the box below (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		4	
	TOTAL		**30**	

DATE	REVISED BY	REVISION DESCRIPTION	No.
2012-08-03	S GOBA	REDUCE TOLERANCE VALUES	1

UNLESS OTHERWISE SPECIFIED, ALL TOLERANCES ON DIMENSIONS ARE ± 0,3.
ALL UNSPECIFIED RADII ARE 6 mm.

GRINDING 0,03

SCALE: 1 : 2

ANSWER 20

DRAWING PROGRAMME: AUTOCAD

MATERIAL: CAST IRON

FILE NAME: TLS30.dwg

HEAT TREATMENT: NORMALISE

DRAWING No. 12-729-KM3

DRAWN BY: K MOODLEY

DATE: 2012-07-15

CHECKED BY: L MBELE

DATE: 2012-07-18

APPROVED BY: J BURGER

DATE: 2012-07-19

QUANTITY: 382

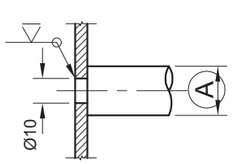
MASTERCAST ENGINEERING
29 BURMAN ROAD
DEALPARTY
PORT ELIZABETH 6025
www.mtech.co.za
041 545 7820

TITLE
EJECTOR BASE

EXAMINATION NUMBER

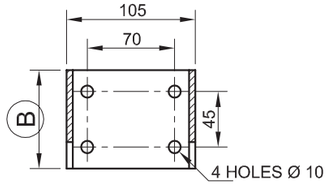
EXAMINATION NUMBER 2

STAPLE

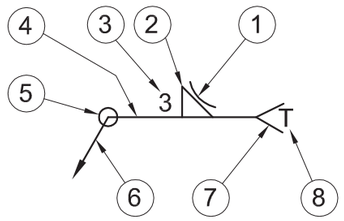


WELDING DETAIL FOR ALL THE HORIZONTAL BARS

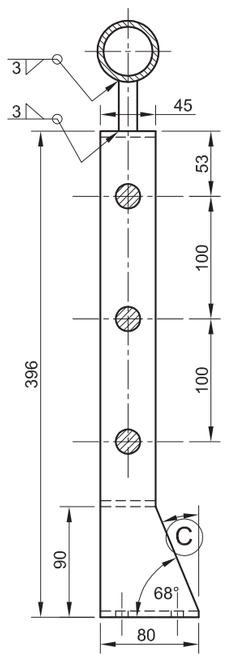
DETAIL 'R'



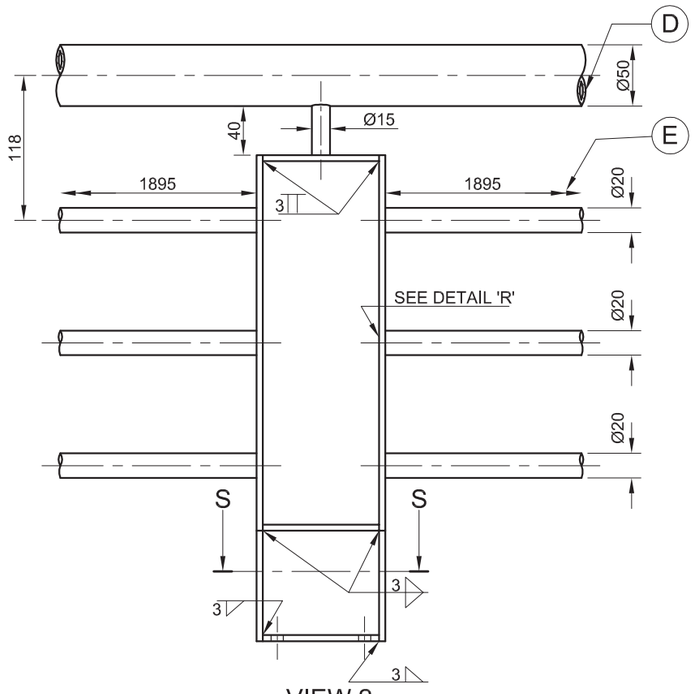
VIEW 1



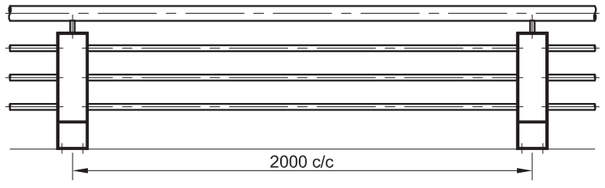
WELDING SYMBOL



VIEW 3



VIEW 2



INSTALLATION DIAGRAM

FILE NAME: PM 12-PSC-347	MATERIAL: 5 mm MILD STEEL PLATE
DRAWING No. 7	FINISH: CHROME PLATED
BALUSTRADE FOR PIET AND SONS CONTRACTORS 17 WALDO STREET DURBAN	DRAWING PROGRAMME: AUTOCAD 2008
	ALL UNSPECIFIED RADII ARE R3.

ALL DIMENSIONS ARE IN MILLIMETRES.

DRAWN BY: HAROLD	2011/05/15
CHECKED BY: SALLY	2011/05/25
APPROVED BY: GEORGE	2011/06/01
SCALE: 1 : 10	
QUANTITY: 26 BRACKETS	

WELDTECH
ENGINEERING

51 PARK AVENUE
NEWLANDS
4070
www.weldtech.co.za
031 645 7820

TITLE
BALUSTRADE BRACKET

ANSWER 17

SYMBOL

QUESTION 1: ANALYTICAL (MECHANICAL)

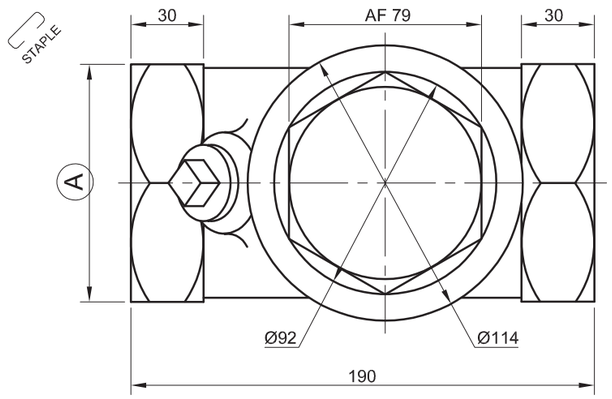
Given:
A selection of views of a balustrade bracket, a welding symbol, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and the title block. **[30]**

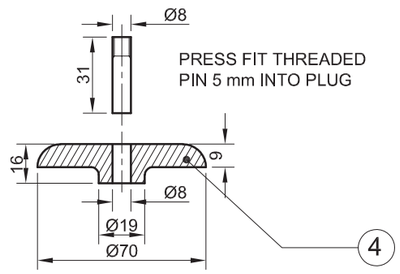
	QUESTIONS	ANSWERS		
1	With reference to the welding symbol, link the number on the drawing with the correct element in the column to the right of this question.	ARROW LINE TAIL REFERENCE LINE WELDING PROCESS CONCAVE FINISH WELD ALL AROUND SIZE OF WELD	7	
2	When was the drawing approved?		1	
3	What is the manufacturing company's web address?		1	
4	What finish is required for the balustrade?		1	
5	What is the file name?		1	
6	What is the thickness of the plate used on the bracket?		1	
7	How many brackets must be manufactured?		1	
8	What would view 1 be called?		1	
9	What would view 3 be called?		1	
10	What size bolt is needed to secure the bracket?		1	
11	Determine the dimensions: A B C		3	
12	What is the centre-to-centre distance between two brackets?		1	
13	How many surfaces need to be welded on each bracket?		2	
14	What is feature D called on view 2?		1	
15	What is the meaning of the double arrow at E?		1	
16	If the permissible tolerance on a dimension is ± 0,5, determine the upper and lower tolerance on a dimension of 30 mm.		2	
17	In the box below, draw, in neat freehand, the symbol for the projection system used.		4	
	TOTAL		**30**	

EXAMINATION NUMBER

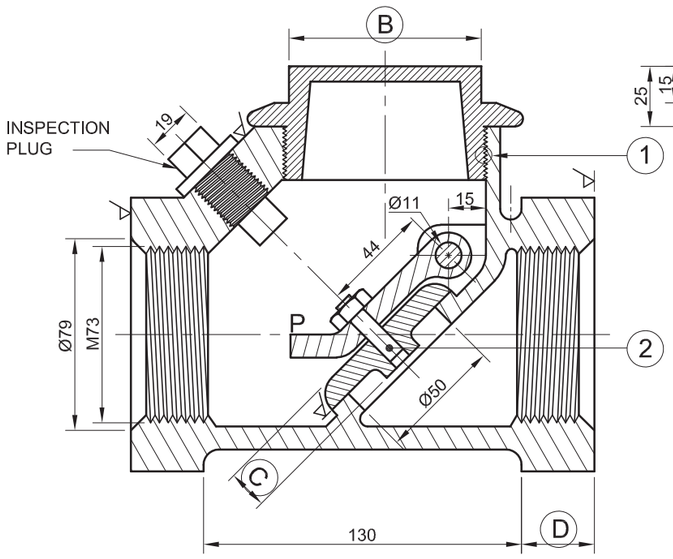
EXAMINATION NUMBER 2



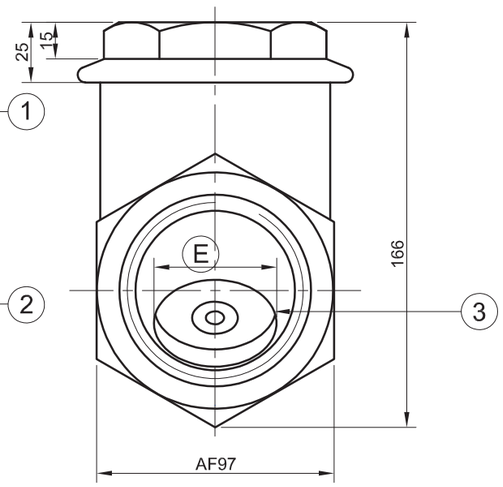
VIEW 2



DETAIL OF THREADED SCREW PIN AND PLUG



VIEW 1



VIEW 3

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
THREE detailed views of a swing check valve, a detail drawing of the screw pin and plug, a title block and a table of questions. The drawings have not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and the title block. **[30]**

	QUESTIONS	ANSWERS	
1	When was the drawing checked?		½
2	Who approved the drawing?		½
3	What scale is indicated for the drawing?		½
4	Who was responsible for the revisions?		½
5	How many revisions have there been to the drawing?		½
6	What was the nature of the first revision?		½
7	How many surfaces require machining?		1
8	What is the roughness value of the machined surfaces?		1
9	Name the circled feature at 1?		1
10	Name the component at 2?		1
11	In ONE word, describe the true shape of the feature at 3.		1
12	What type of section is shown at 4?		1
13	What thread size must a component have in order to be coupled to the swing check valve?		1
14	How many components make up the swing check valve?		1
15	What would view 3 be called?		1
16	Determine the dimensions: A B C D E		5
17	Draw the cutting-plane A-A on view 2.		3
18	In view 1, trace the locus that would be generated by point P as the gate opens to its maximum.		2
19	In the box below (ANSWER 19), draw, in neat freehand, the symbol for the projection system used.		4
20	In the box provided below (ANSWER 20), complete, in neat freehand, and according to *SABS 0111* conventions, the drawing of the inspection plug on the right.		4
	TOTAL		**30**

DATE	REVISED BY	REVISION DESCRIPTION	№
2011-08-12	N. BOOTH	LENGTHEN INSPECTION PLUG	3
2011-08-09	N. BOOTH	SHOW MACHINED SURFACES	2
2011-08-05	N. BOOTH	REMOVE WASHER	1

DRAWING No. 60305
MATERIAL: BRONZE
FILE NAME: SCV 15-10
HEAT TREATMENT: NORMALISE
UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ± 0,25
DRAWING PROGRAMME: AUTOCAD 2011
ALL UNSPECIFIED RADII ARE R2.
ALL DIMENSIONS ARE IN MILLIMETRES

DRAWN BY: S. SHABALALA	2011-07-22	
CHECKED BY: S. PIENAAR	2011-07-24	
APPROVED BY: A. MOKOENA	2011-07-03	
SCALE: 1:2		

MECHTECH ENGINEERING
17 LONG STREET
NEW PARK
KIMBERLEY 8300
www.mtech.co.za
☏ 041 645 7820

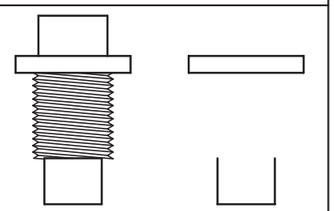
TITLE
SWING CHECK VALVE

0,8

ANSWER 19

SYMBOL

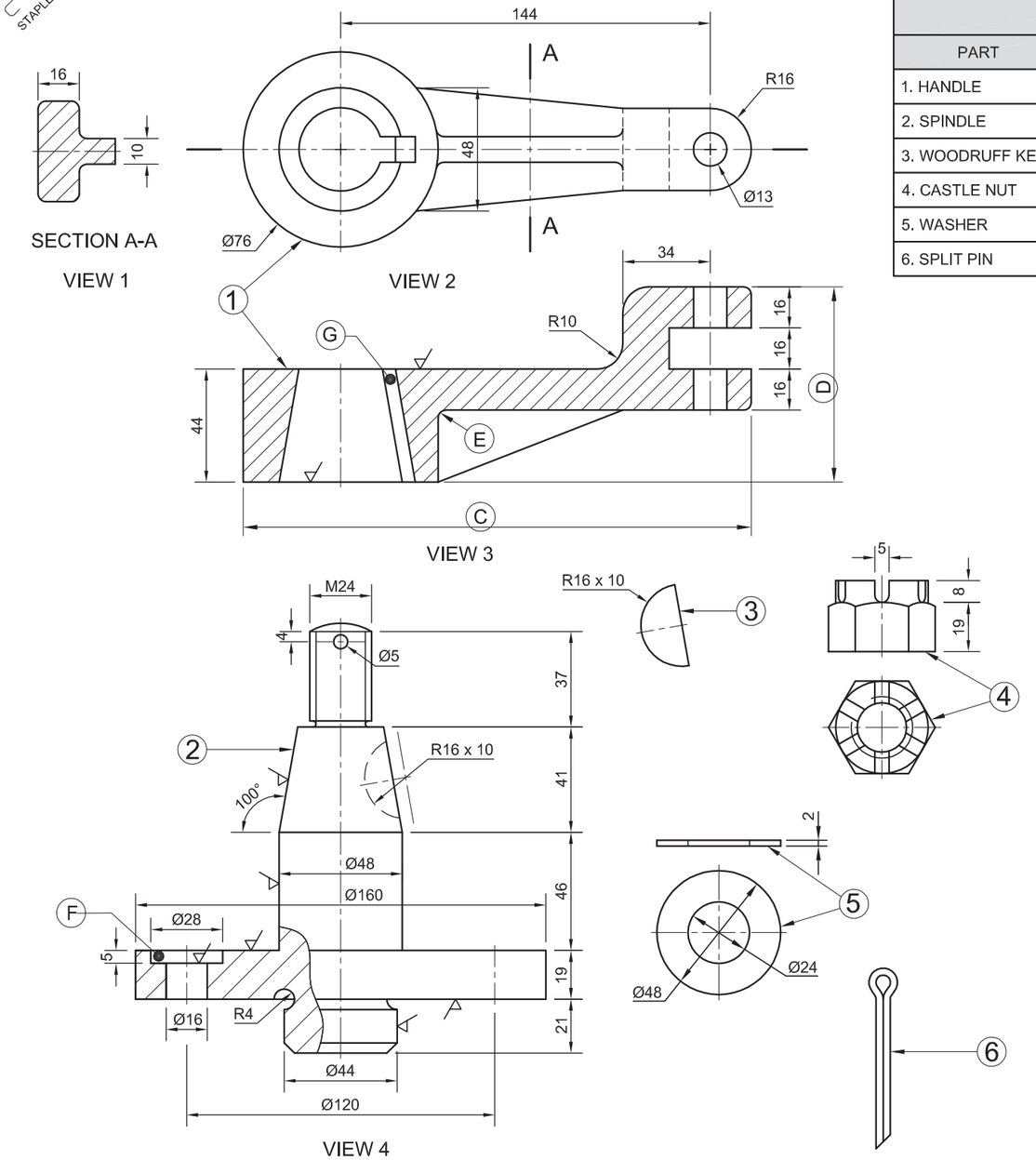
ANSWER 20



EXAMINATION NUMBER

EXAMINATION NUMBER 2

STAPLE



PARTS LIST		
PART	QUANTITY	MATERIAL
1. HANDLE	1	MILD STEEL
2. SPINDLE	1	MILD STEEL
3. WOODRUFF KEY	1	HARDENED STEEL
4. CASTLE NUT	1	HARDENED STEEL
5. WASHER	1	MILD STEEL
6. SPLIT PIN	1	SPRING STEEL

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Six parts of a crank handle with a title block and a table of questions.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and the title block. **[25]**

	QUESTIONS	ANSWERS	
1	On what date was the drawing drawn?		1
2	What is the file name of the drawing?		1
3	In which street is the manufacturing company situated?		1
4	Who made changes to the drawing?		1
5	What scale is indicated for the drawing?		1
6	What is the tolerance allowed on the dimensions?		1
7	What type of section is indicated with view 1?		1
8	What would VIEW 3 be called?		1
9	How many surfaces must be machined on VIEW 4?		1
10	What is the thickness of the Woodruff key?		1
11	Determine the dimensions at C and D.	**C** **D**	2
12	What is the size of the arc at E?		1
13	What is the feature at F called?		1
14	What is the feature at G called?		1
15	What is the purpose of the castle nut?		1
16	What is the purpose of the split pin?		1
17	What type of section is indicated on VIEW 4?		1
18	What is the purpose of the Woodruff key in the crank-handle assembly?		1
19	Draw the arrows for the cutting plane located on VIEW 2 and label it B-B.		2
20	In the box below (ANSWER 20), draw, in neat freehand, the symbol for the projection system used.		4
	TOTAL		**25**

	13/12/2010	STEVEN	INSERT KEY AND KEYWAY	A
ALL DIMENSIONS ARE IN MILLIMETRES.	DATE	CHANGED BY	REVISION DESCRIPTION	№

UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE ± 0,15.	DRAWN BY: JOHAN	DRAWING NO. 2	MATERIAL: MILD AND HARDENED STEEL
	DATE: 05/11/2010	FILE NAME: CRANK_003	HEAT TREATMENT: NORMALISE
ALL UNSPECIFIED RADII ARE R3.	CHECKED BY: DE WET	MAXSTEEL MANUFACTURING	GOVAN MBEKI DRIVE PORT ELIZABETH 6001 www.maxsteel.co.za
	DATE: 10/11/2010		
DRAWING PROGRAM: AUTOCAD 2008	APPROVED BY: ALIDA	CRANK HANDLE	
	DATE: 20/11/2010		
	SCALE: 1 : 2		

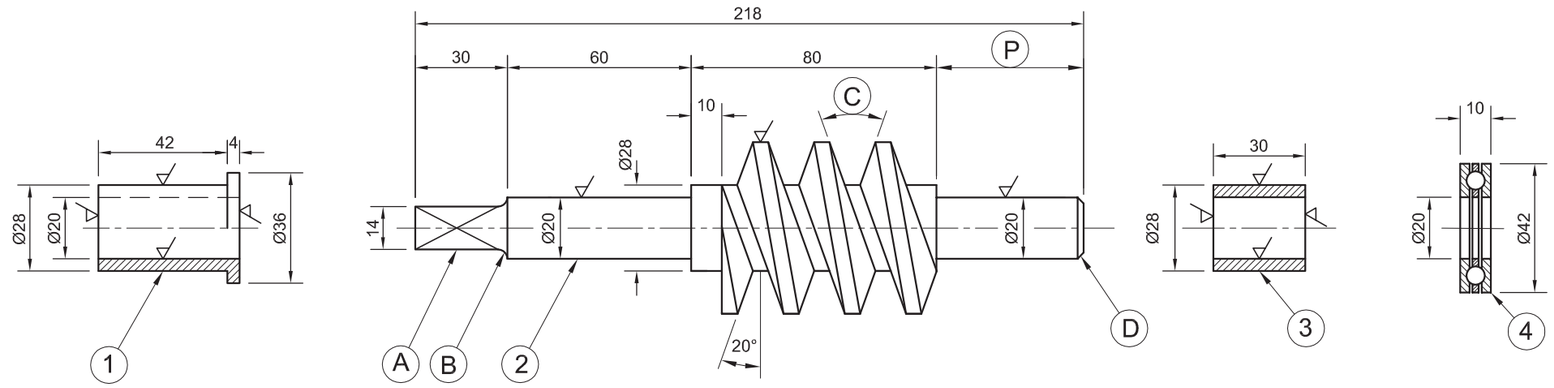
ANSWER 20

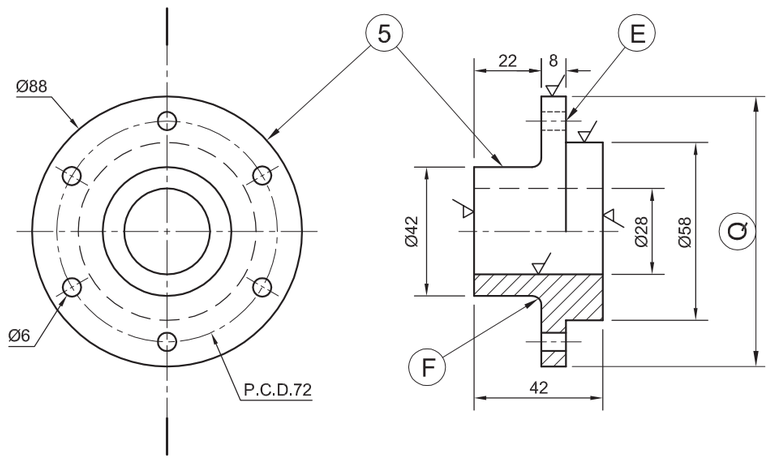
SYMBOL

EXAMINATION NUMBER

EXAMINATION NUMBER 2

STAPLE





PARTS LIST		
PART	QUANTITY	MATERIAL
1. BUSH	1	BRASS
2. WORM	1	CASE-HARDENED STEEL
3. BUSH	1	BRASS
4. BEARING	1	CASE-HARDENED STEEL
5. END PLATE	1	MILD STEEL

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Five parts of a worm gear assembly with a title block and a table of questions

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawings and title block. **[30]**

	QUESTIONS	ANSWERS	
1	On what date was the drawing first checked?		1
2	From what material are the bushes manufactured?		1
3	Which drawing method was used to create these drawings?		1
4	How many end plates are there on this assembly?		1
5	How many sets of drawings are there?		1
6	What is the tolerance allowed on the dimensions?		1
7	How many surfaces must be machined?		1
8	What does the cross at A indicate?		1
9	What is feature B called?		1
10	What is the size of angle C?		1
11	What is feature D called?		1
12	What is the size of the hole marked E?		1
13	What is the size of the arc marked F?		1
14	What type of section is shown on part 1?		1
15	Determine the dimensions at:	**P** **Q**	2
16	What do the letters P.C.D. stand for?		1
17	How many bolts will be used to secure the end plate?		1
18	Draw the arrows for the cutting plane located on part 5 and label it A-A.		2
19	In the box below (ANSWER 19), draw, in neat freehand, the symbol for the projection system used.		4
20	In the box below (ANSWER 20), draw, in neat freehand, the *SABS 0111* convention for part 4.		6
	TOTAL		**30**

	15/05/2010	MICHELLE	ANGLE OF GEARS	A
ALL DIMENSIONS ARE IN MILLIMETRES.	DATE	CHANGED BY	REVISION DESCRIPTION	№

UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ± 0,25.	DRAWN BY: JOSHUA	DRAWING SET NO. 3 OF 4	MATERIAL: VARIOUS
	DATE: 20/04/2010	FILE NAME: P-S2-B4	HEAT TREATMENT: NONE
ALL UNSPECIFIED RADII ARE R3.	CHECKED BY: KRISTY	LONGSTEEL MANUFACTURING	RIVER DRIVE EAST LONDON 5247 www.longsteel.co.za
	DATE: 26/04/2010		
DRAWING PROGRAM: AUTOCAD 2008	APPROVED BY: HOLLY	WORM-GEAR ASSEMBLY	
	DATE: 01/05/2010		
	SCALE: 1 : 2		

ANSWER 19

SYMBOL

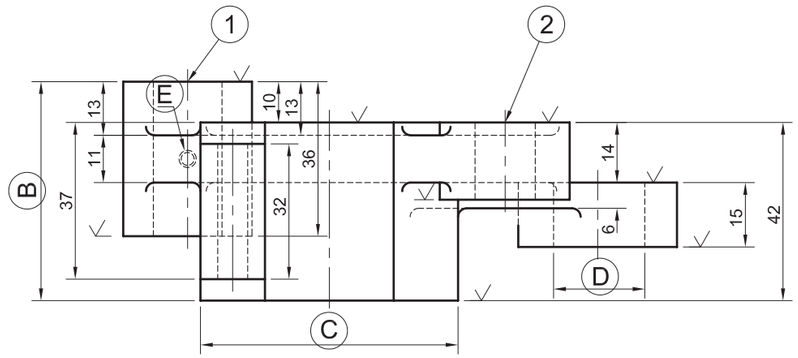
ANSWER 20

Convention for part 4

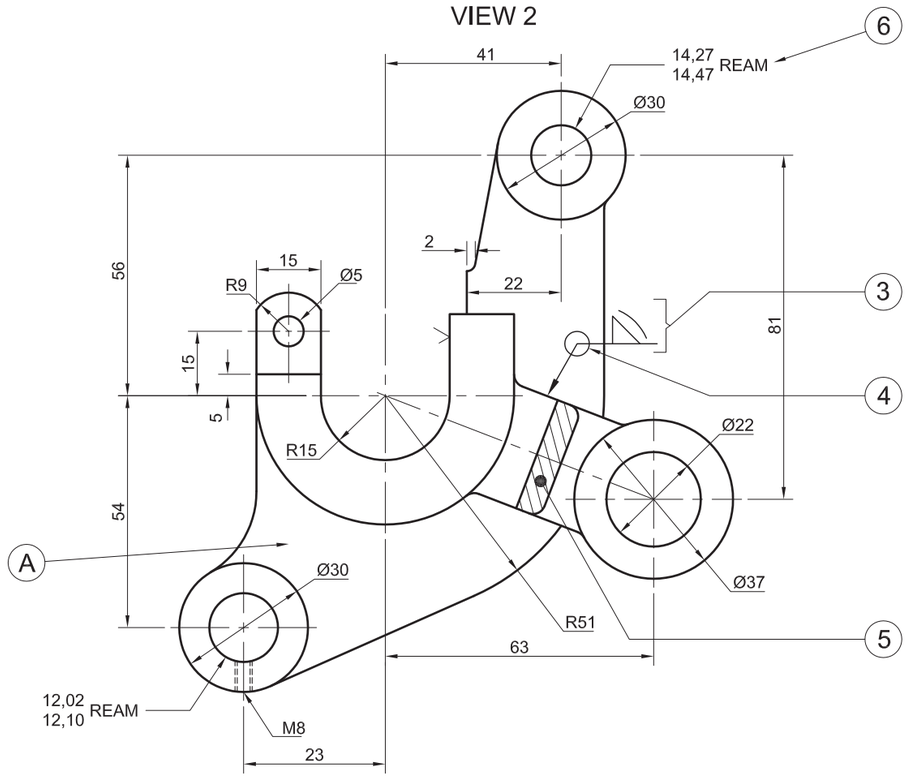
EXAMINATION NUMBER

EXAMINATION NUMBER 2

STAPLE



VIEW 2



VIEW 1

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
Two views of an adaptor plate with a title block and a table of questions.

Instructions:
Complete the table below by neatly printing the answers to the questions, which all refer to the accompanying drawings and the title block. **[30]**

	QUESTIONS	ANSWERS	
1	What is the title of the drawing?		1
2	On what date was the drawing checked?		1
3	Who approved the drawing?		1
4	What is the drawing number?		1
5	If a scale of 1:5 were used, what would a dimension of 10 mm read?		1
6	How many surfaces on the component require machining?		1
7	What process must be applied to achieve the required finish?		1
8	As what type of mechanical drawing can the views of the adaptor plate be classified?		1
9	What would VIEW 2 be called?		1
10	What is the thickness of the rib marked A?		1
11	Determine the dimensions at: B C D E		4
12	What is the linear distance between holes 1 and 2?		1
13	What type of symbol is shown at 3?		1
14	What does the circle on the symbol at 4 mean?		1
15	What type of section is shown at 5?		1
16	What is the permissible tolerance on the dimensions of the component?		1
17	Determine the tolerance for the dimension at 6.		2
18	In the box below, draw, in neat freehand, the symbol for the projection system used.		4
19	In the box below, draw, in neat freehand, the *SABS 0111* convention for the given internal screw thread.		5
	TOTAL		**30**

12-06-09	MUSA	CHANGE MACHINING SPEC'	B
07-06-09	MUSA	DECREASE RIB THICKNESS	A
DATE	CHANGED BY	REVISION DESCRIPTION	No.

ALL DIMENSIONS ARE IN MILLIMETRES.

ALL SPECIFIED SURFACE FINISHES ARE: 0,05 GRINDING

DRAWING No. Q1/DOE/10 | MATERIAL: CAST ALUMINIUM

FILE NAME: FM-P2-2010 | HEAT TREATMENT: NONE

THE TOLERANCE ON DIMENSIONS IS ± 0.3, UNLESS OTHERWISE SPECIFIED.

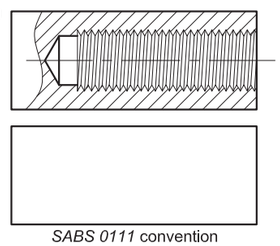
eBHAYI ENGINEERING PTY (LTD)
73 ACACIA AVENUE
PORT ELIZABETH
6001
041 645 7820

DRAWING PROGRAM: AUTOCAD 2009

DRAWN BY: AB MORKEL	20/05/09
CHECKED BY: Z KHUMALO	25/05/09
APPROVED BY: PP STEYN	07/06/09
SCALE: 1:2	

TITLE
ADAPTOR PLATE

18
SYMBOL

19

SABS 0111 convention

EXAMINATION NUMBER

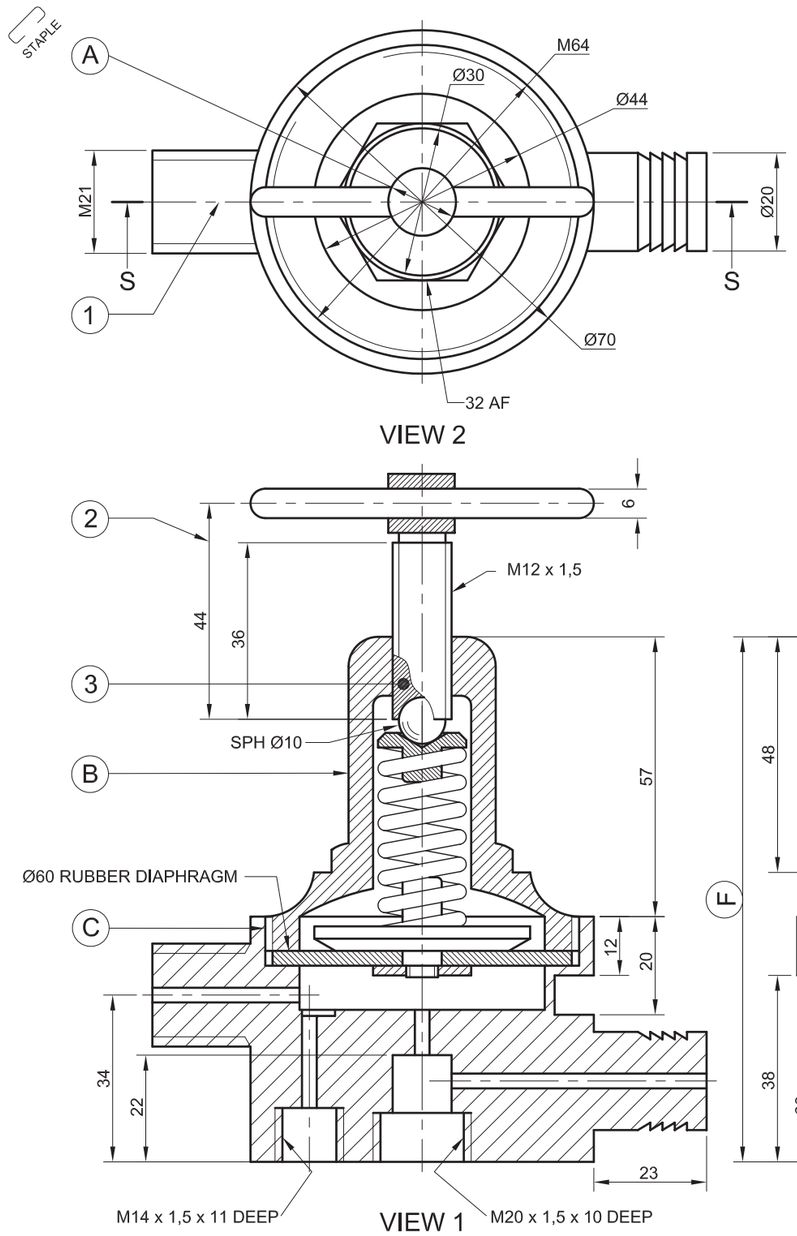
EXAMINATION NUMBER 2

Please turn over

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
The working drawings of a diaphragm regulator with a title block and a table of questions.

Instructions:
Complete the table below by neatly printing the answers to the questions, which all refer to the accompanying drawings and the title block. **[30]**



	QUESTIONS	ANSWERS	
1	On what date was the revision completed?		1
2	Who checked the drawing?		1
3	What is the title of the drawing?		1
4	What scale is indicated for the drawing?		1
5	From what material are the metal components of the regulator made?		1
6	How many internal screw threads are there in the assembly?		1
7	How many parts make up the assembly?		1
8	What orthographic projection system has been used?		1
9	What would VIEW 3 be called?		1
10	What would VIEW 2 be called?		1
11	What is the outer diameter of the rubber diaphragm?		1
12	What is the diameter of the sphere?		1
13	Determine the dimensions at: A B C D E F		6
14	What drawing feature is shown at 1?		1
15	What drawing feature is shown at 2?		1
16	What type of section is shown at 3?		1
17	What does the machining symbol $\sqrt{Q}$ mean?		2
18	In the block below, draw, in neat freehand, the simplified *SABS 0111* convention for a spring.		4
19	What is the permissible tolerance on the components of the regulator?		1
20	Determine the upper limit of tolerance for a dimension of 34 mm.		2
	TOTAL		**30**

12/05/09	MARIE	DIAMETER OF INLETS	A
DATE	CHANGED BY	REVISION DESCRIPTION	№

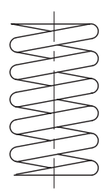
DIAPHRAGM REGULATOR

EGD ENGINEERING
(SA) (PTY) LTD

188 SCHOEMAN STREET
PRETORIA
0001
www.egdengineering.co.za
☎ 012 555 2345

DRAWING SYSTEM: AutoCAD 2009	DRAWN: MANDLA	20/03/09
DRAWING №. LFN/304/2009	CHECKED: CARLA	29/03/09
FILE NAME: D5-Y2	APPROVED: ROELF	03/04/09
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETRES WITH A TOLERANCE OF 0,25.	MATERIAL: BRASS	
	HEAT TREATMENT: NORMALISE	
UNLESS OTHERWISE SPECIFIED, ALL SURFACE TEXTURE FINISHES ARE $\sqrt{Q}$	SCALE: 1:2	

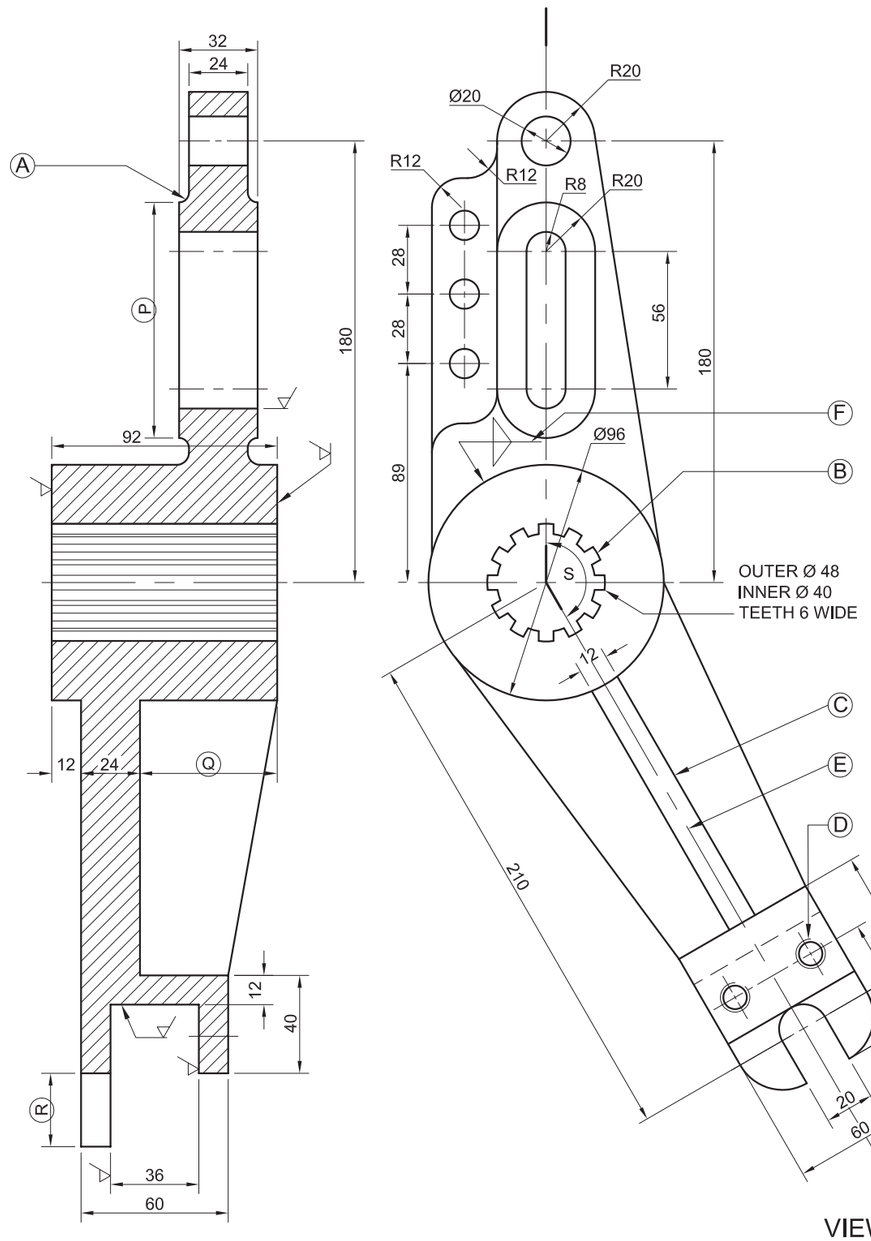
18.



Convention for the spring

EXAMINATION NUMBER	
EXAMINATION NUMBER	2

STAPLE



VIEW 1

VIEW 2

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A table of questions and a working drawing.

Instructions:
Complete the table below by neatly printing the answers to the questions, which all refer to the accompanying drawings and the title block. **[29]**

	QUESTIONS	ANSWERS	
1	On what date was the drawing first completed?		1
2	What material is used to manufacture the bell crank?		1
3	What is the drawing number?		1
4	How many revisions have been made to the drawing?		1
5	Where is the manufacturing company situated?		1
6	What is the tolerance allowed on the dimensions?		1
7	How many surfaces must be machined?		1
8	What is feature **A** called?		1
9	What is feature **B** called?		1
10	What is feature **C** called?		1
11	What is feature **D** called?		1
12	Name the type of line shown at **E**.		1
13	Identify the type of symbol shown at **F**.		1
14	Name the type of section on VIEW 1.		2
15	Determine the dimensions at: **P** **Q** **R**		3
16	What is the size of angle **S**?		1
17	What orthographic projection system has been used?		1
18	Draw the arrows for the cutting plane located on view 2 and label it A-A.		2
19	In the box below and in freehand, neatly draw the symbol for the projection system used.		4
20	In the box below and in freehand, neatly draw the SABS 0111 convention used for the feature at **B**.		3
		TOTAL	**29**

ALL DIMENSIONS ARE IN MILLIMETRES

DATE	CHANGED BY	REVISION DESCRIPTION	№
15-10-08	KAREN	SPLINE ON MAIN HUB	A

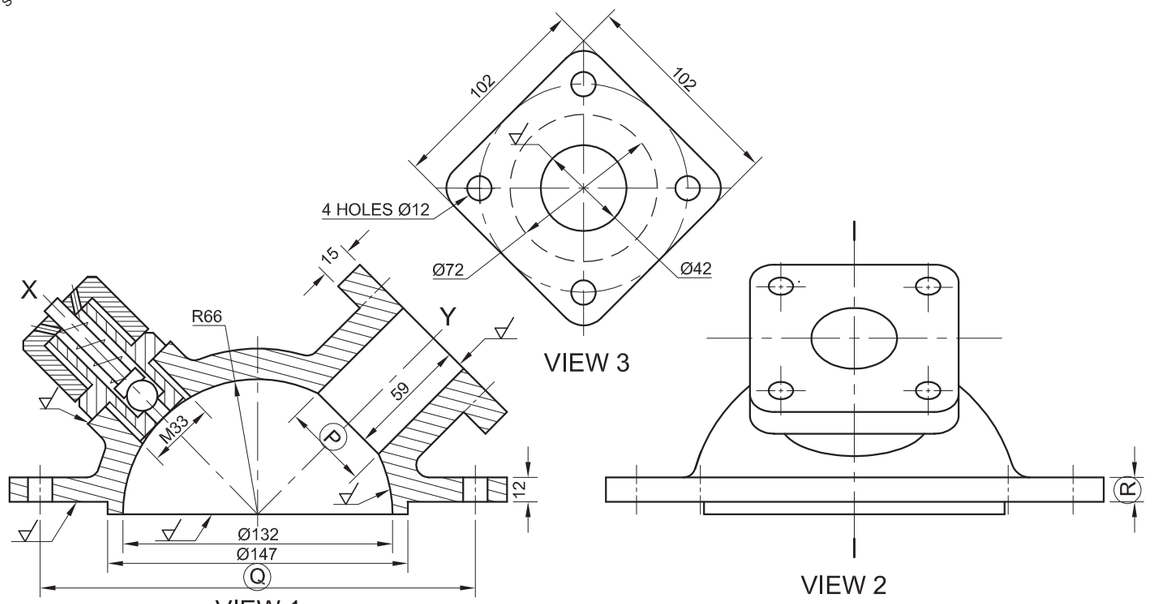
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE ± 0,25	DRAWN: COLEEN	DRAWING No. S8/ED/01	MATERIAL: CAST IRON	19
	DATE: 20/02/08	FILE NAME: S-P2-A2	HEAT TREATMENT: NORMALISE	
	CHECKED: KARL	CAPE STEEL MANUFACTURING	FOREST DRIVE GOODWOOD 5240 www.capesteel.co.za	
ALL UNSPECIFIED RADII ARE R3	DATE: 26/02/08			
	APPROVED: JESSIE			
DRAWING PROGRAMME: AUTOCAD 2008	DATE: 01/03/08	BELL CRANK		SYMBOL
	SCALE: 1:2			

20

Convention for feature B

EXAMINATION NUMBER	
EXAMINATION NUMBER	2

STAPLE



QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A table of questions and a set of working drawings.

Instructions:
Complete the table below by neatly printing the answers to the questions, which all refer to the accompanying drawings and the title block.

[26]

	QUESTIONS	ANSWERS	
1	On what date was the drawing checked?		½
2	In which city is the manufacturing company situated?		½
3	What is the name of the drawing file?		½
4	How many revisions have been made to the drawing?		½
5	What is the tolerance allowed on the dimensions?		½
6	How many bolts are required to secure the cylinder head to the body?		½
7	How many surfaces must be machined?		1
8	What is feature **A** called?		1
9	What is feature **B** called?		1
10	What is feature **C** called?		1
11	What is feature **D** called?		1
12	How many parts does the assembly consist of?		1
13	What would view 3 be called?		1
14	Name the type of section on: VIEW 1 VIEW 4		2
15	Determine the dimensions at: P Q R S		4
16	What is the angle between the holes marked **X** and **Y** on view 1?		1
17	Draw the arrows for the cutting plane located on view 2 and label it A-A.		3
18	What does the symbol 0.02 mean?		1
19	What orthographic projection system has been used?		1
20	In the box below neatly draw, in freehand, the symbol for the projection system used.		4
		TOTAL	**26**

0.02

DATE	CHANGED BY	REVISION DESCRIPTION	№
06-10-08	PUMI	CHANGE M25 TO M33	2
03-10-08	PUMI	INCLUDE MACHINING SYMBOLS	1

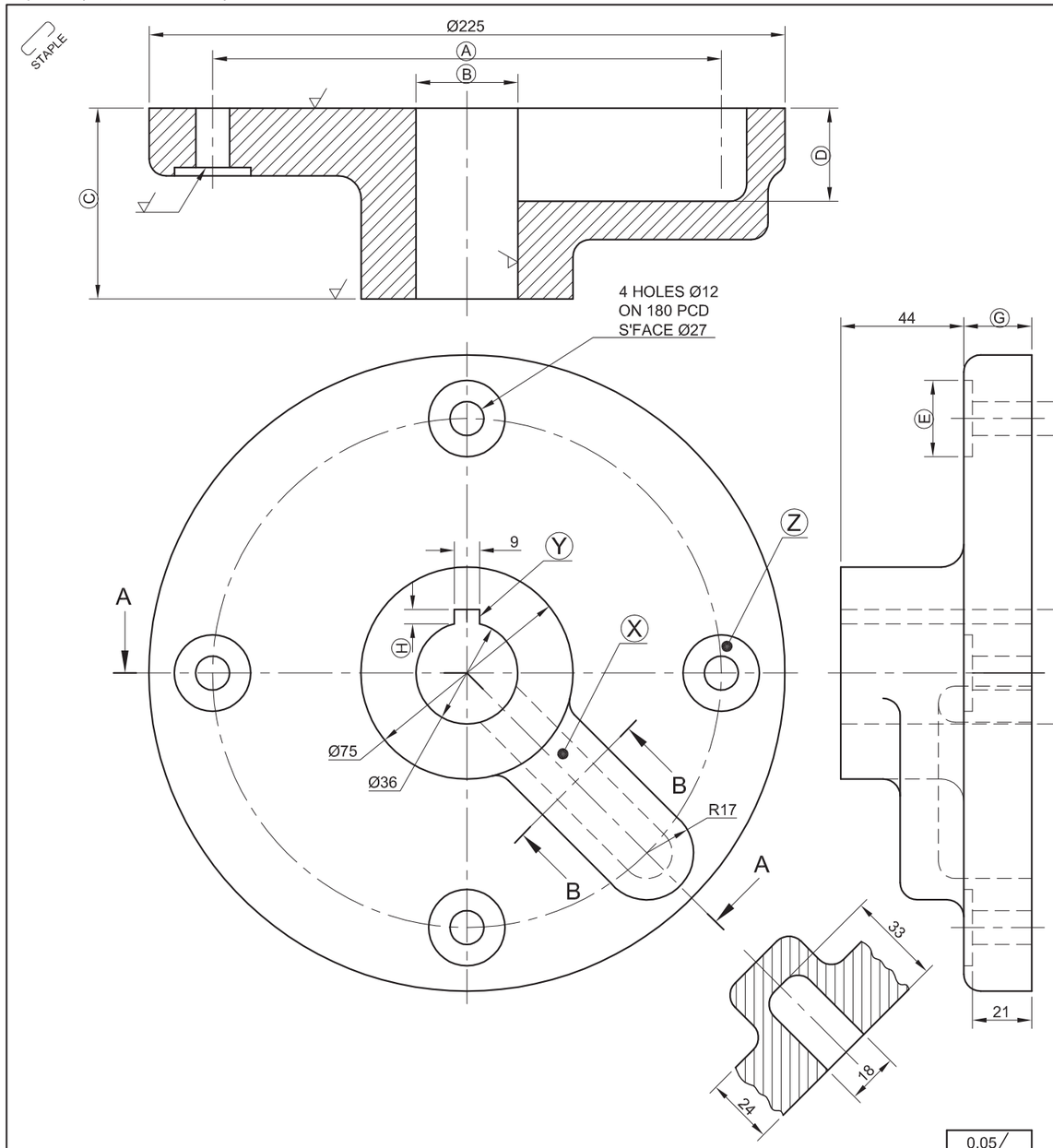
ALL DIMENSIONS ARE IN MILLIMETRES

DRAWING No. N8/DOE/001	MATERIAL: CAST IRON	DRAWN: JOHAN	UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE: ± 0,05
FILE NAME: N-P2-E018	HEAT TREATMENT: NONE	DATE: 25/09/08	
MEGA MANUFACTURING	DIAS STREET EAST LONDON 5240 www.mega.co.za	CHECKED: KENNETH	ALL UNSPECIFIED RADII ARE R4
		DATE: 02/10/08	
		APPROVED: JABU	
CYLINDER HEAD ASSEMBLY		DATE: 16/10/08	DRAWING PROGRAMME: AUTOCAD 2008
		SCALE: 1:5	SYMBOL

EXAMINATION NUMBER

EXAMINATION NUMBER 2

STAPLE



QUESTION 1: ANALYTICAL (MECHANICAL)

Given:
A set of working drawings and questions.

Instructions:
Complete the table below by answering the questions which all refer to the accompanying drawings and title block.

[25]

	QUESTIONS	ANSWERS	
1	On what date was the drawing first completed?		½
2	Who redrew the drawing?		½
3	What is the name of the manufacturing company?		½
4	What is the drawing number?		½
5	What dimension unit is used?		½
6	What tolerances are allowed on the dimensions?		1
7	What heat treatment is required?		1
8	How many surfaces must be machined?		1
9	What is the width of the slot marked **X**?		1
10	What is feature **Y** called?		1
11	What is feature **Z** called?		1
12	What is the maximum 'M' sized bolt that could be used to hold the crank disc in place?		1
13	If the drawing was drawn full size, what would dimension Ø36 read?		½
14	Determine the dimensions at: A B C D		4
15	Determine the dimensions at: E F G H		4
16	What type of section is created by cutting plane B-B?		1
17	What do the letters PCD stand for?		1
18	What does the symbol $\frac{0,05}{\nabla}$ mean?		1
19	Label the TWO sectioned views.		2
20	In the box below neatly draw, in freehand, the symbol for the projection system used.		2
		TOTAL	**25**

0,05

ISSUE	REVISION	DATE	BY	CHECKED
A	REDRAWN:	20/04/07	S-BU	NJUMO

ALL DIMENSIONS IN MILLIMETRES

UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE:
2 DECIMAL PLACES: ± 0,05
3 DECIMAL PLACES: ± 0,005

DRAWN: MUTANGWA
DATE: 11/04/07
CHECKED: STEVEN

TSIMBI CORPORATION

TSHEDZA STREET
THOHOYANDOU
0950
www.tsimbi.co.za

ALL UNSPECIFIED RADII ARE R3

DATE: 15/04/07
APPROVED DAN

TITLE

CRANK DISC

DRAWING PROGRAMME: AUTOCAD 2007

DATE: 16/04/07
SCALE: 1:2

MATERIAL: SAE 1040
HEAT TREATMENT: NORMALISE

DRAWING No. TC/DOE/0811
FILE NAME: CD-334

ORTHOGRAPHIC PROJECTION SYMBOL

EXAMINATION NUMBER

EXAMINATION NUMBER 2