



Figure 1

ANSWER 1	
Name:	WELDING SYMBOL ✓1
a. ROUGHNESS VALUE or GRADE NUMBER 1	d. SAMPLE LENGTH 1
b. MACHINING ALLOWANCE 1	e. METHOD/TREATMENT 1
c. DIRECTION OF LAY 1	f. OTHER ROUGHNESS VALUE 1

QUESTION 1: ANALYTICAL (MECHANICAL)

Given:

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

Instructions:

With a pencil, complete the table by neatly printing the correct answers in the corresponding answer column. All the questions refer to the accompanying drawings and the title block on diagram sheet A. [26]

1	2	3	4

Figure 2

1	
2	
3	
4	
5	
6	

Figure 3

ANSWER 5	
1	FREEHAND ✓5 ✓5
2	
3	
4	
5	
6	

QUESTIONS		ANSWERS			
1	Name and label Figure 1 (a-f) accordingly.			4	
2	With reference to Figure 2 showing the direction of lay, link the number on the drawing with the correct symbol in the column to the right of this question and label each of the symbols accordingly.	MULTI DIRECTIONAL	2 2	1	
		PERPENDICULAR TO PLANE	4 2	1	
		CIRCULAR PATTERN	1 2	1	
		CROSSED PATTERN	3 2	1	
3	List ANY four(4) production methods that can be used in the engineering field.	✓3 CHEMICAL or ✓3 HONING or		4	
		✓3 GRINDING or ✓3 MACHINING or			
		LAPPING or PLATING	Any 4		
4	Refer to the machining and surface texture symbols in Figure 3 alongside and give the meaning of each symbol respectively.	1	0,6 UPPER & 0,3 LOWER LIMIT/ROUGHNESS VALUE.	1	
		2	FINISH BY HONING WITH THE ROUGHNESS VALUE OF 0,2	1	
		3	THE ROUGHNESS NUMBER 7 TO BE MEASURED OVER A SAMPLE LENGTH OF 12mm.	1	
		4	MACHINING IS PERMITTED.	1/2	
		5	MACHINING IS NOT PERMITTED.	1/2	
		6	FINISH TO A ROUGHNESS VALUE OF 0,5, MACHINED IN RADIAL PATTERN TO THE PROJECTION.	1	
5	In the space provided, answer each question by neatly drawing the required symbol in freehand.	1	Remove material with a limit of 1,6 parallel to the plane of projection.	1	
		2	Machine to allowance of 5mm.	1/2	
		3	The surface must be machined by turning and to a roughness value of 0,4μ.	1	
		4	Machine to a roughness value of 6,3 to be measured over a sample length of 10.	1	
		5	Remove material between an upper limit of 0,5 and lower limit of 0,3.	1	
		6	Machine by grinding to a value of 0,6 measured over a sample length of 15mm with a variance of 0,2.	1 1/2	
TOTAL				25	

