



# basic education

Department:  
Basic Education  
**REPUBLIC OF SOUTH AFRICA**

## **NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**ENGINEERING GRAPHICS AND DESIGN P2**

**FEBRUARY/MARCH 2015**

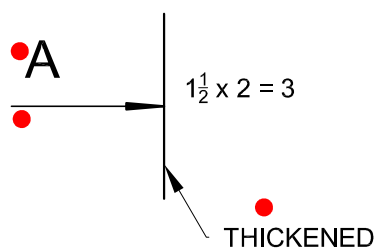
**MEMORANDUM**

**MARKS: 100**

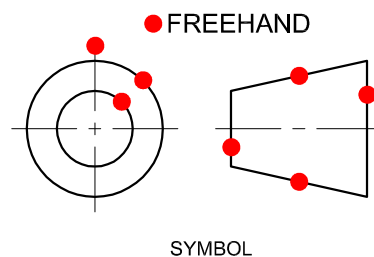
**This memorandum consists of 6 pages.**

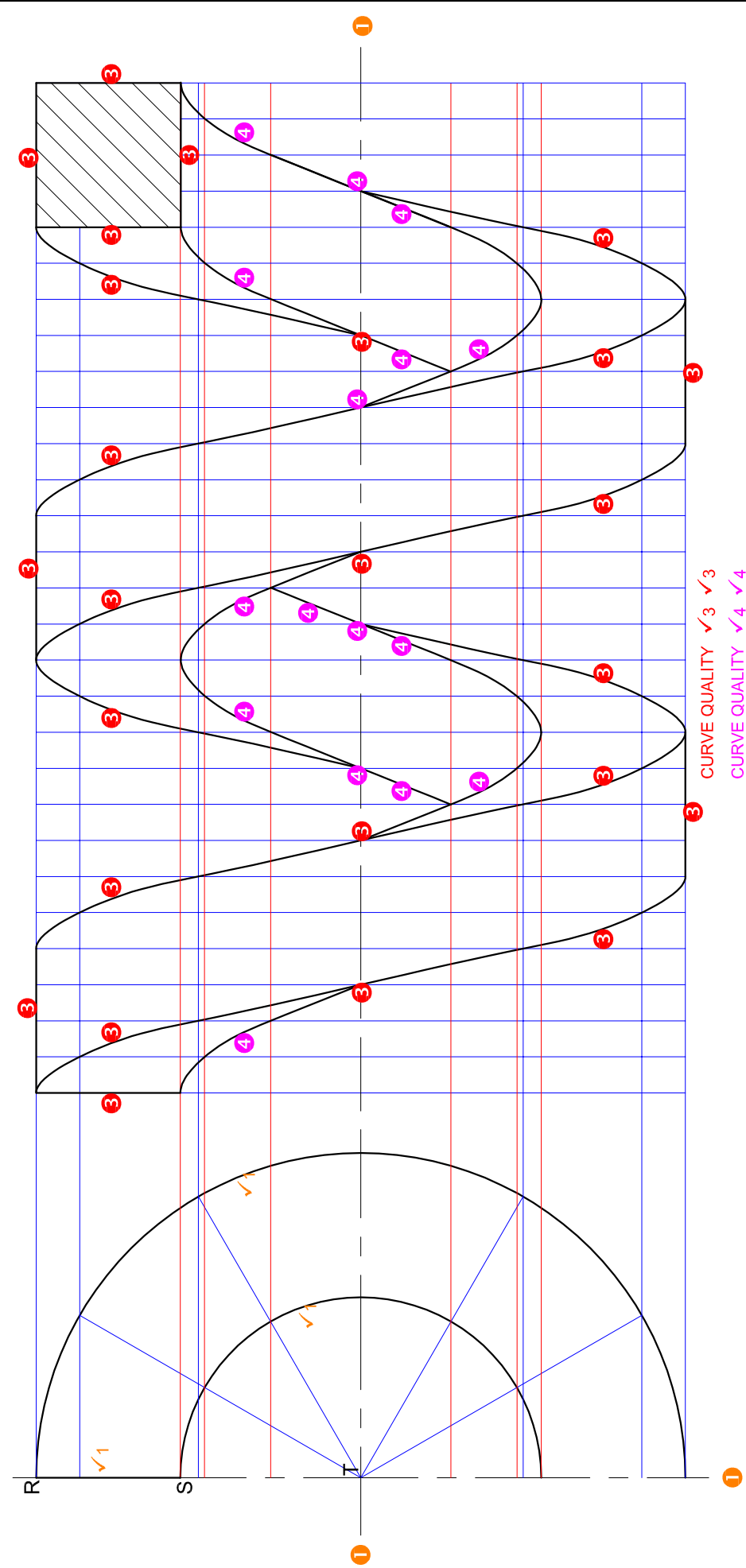
ANSWERS		
1	2014-03-03	1
2	BOX AND GLAND	1
3	SCALE 1 : 2	1
4	RUBBER	1
5	2014-02-03	1
6	BG-15/4	1
7	RIGHT VIEW	1
8	HALF SECTION	1
9	WASHER	1
10	STUD	1
11	SPOTFACE	1
12	S-BREAK	1
13	7	1
14	A - 100                      B - Ø12	2
15	C - $21 - 3 = 18$ D - $64 + (32-8) = 88$	4
16	160.25	2
17	159.7	2
18		3
19		4
TOTAL		30

ANSWER 18



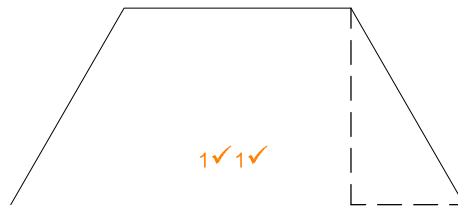
ANSWER 19



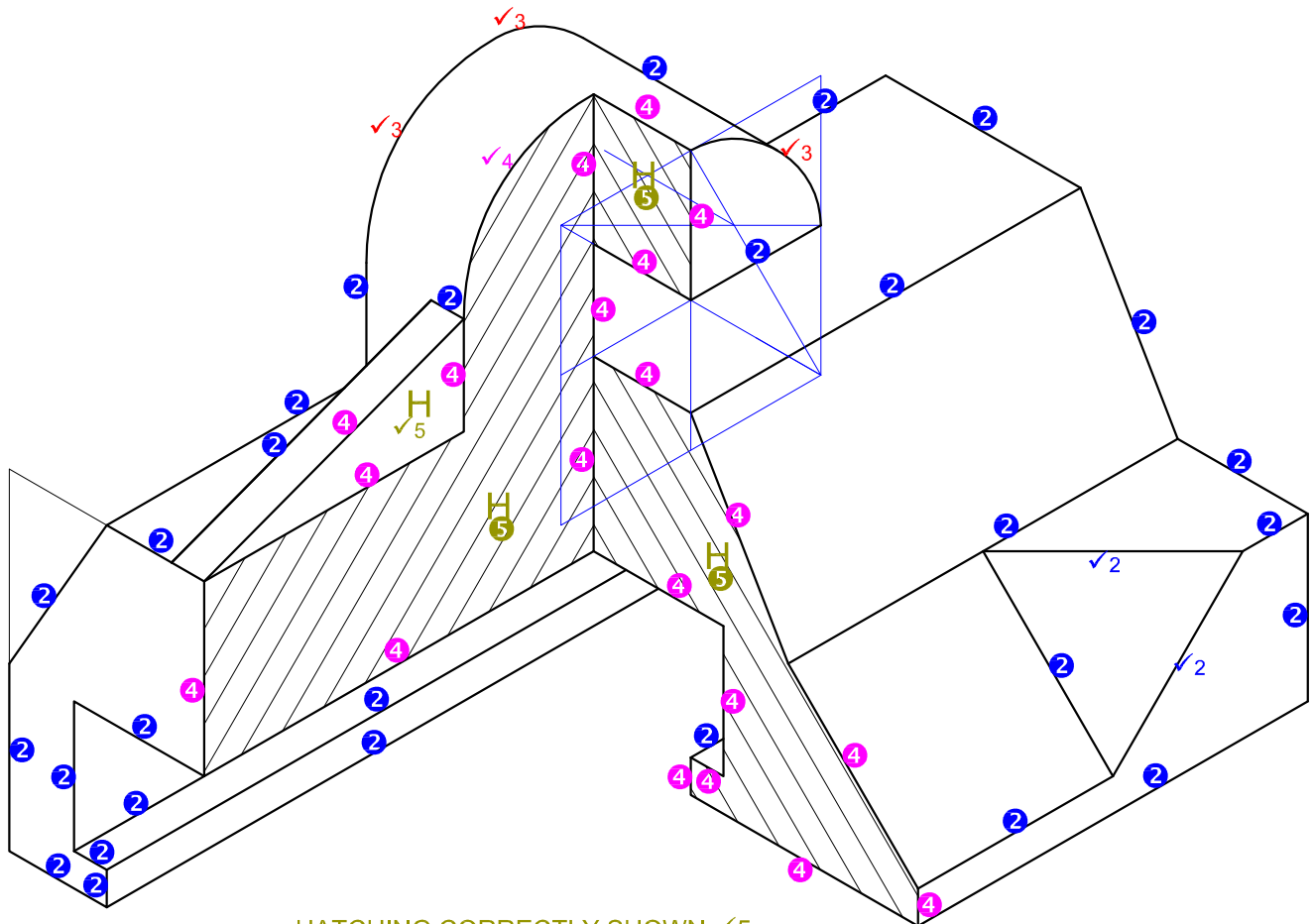


- CONSTRUCTION:**
- CIRCLE DIVISION 1
  - PITCH 1
  - HORIZONTAL PROJECTION INNER CIRCLE 1
  - HORIZONTAL PROJECTION OUTER CIRCLE 1
  - VERTICAL DIVISION FIRST TURN 1
  - VERTICAL DIVISION SECOND TURN 1
  - DIRECTION 2
- 8

ASSESSMENT CRITERIA			
1	GIVEN + CENTRE LINES + STARTING POINT	4 ½	TOTAL 37
2	CONSTRUCTION	8	
3	OUTSIDE POINTS + CURVE + QUALITY	14 ½	
4	INSIDE POINTS + CURVE + QUALITY	10	
PENALTIES (-)			

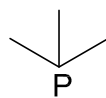


CIRCLE CONSTRUCTION ✓3✓3



HATCHING CORRECTLY SHOWN ✓5

CORRECT PLACEMENT ON POINT P ✓1



ASSESSMENT CRITERIA		
1	AUX. VIEW + PLACING	3
2	ISOMETRIC + NON-ISOMETRIC LINES	16½
3	ISOMETRIC CIRCLES + CIRCLE CONSTRUCTION.	5
4	SECTIONED SURFACES	11
5	HATCHING	3½
PENALTIES (-)		
TOTAL		39

PAPER 2 QUESTION 3  
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MEMORANDUM

**ASSESSMENT CRITERIA****SECTIONAL FRONT VIEW**

		POSSIBLE
1	SHAFT	17 $\frac{1}{2}$
2	SEAL	2
3	BASE	18 $\frac{1}{2}$
4	GUIDE PIN	2 $\frac{1}{2}$
5	LOCKING LEVER	7
6	WASHER	2 $\frac{1}{2}$
7	M12 NUT	6 $\frac{1}{2}$
<b>SUBTOTAL</b>		<b>56 <math>\frac{1}{2}</math></b>

MARK ALLOCATION  
FOR STUDS

$$11 \times \frac{1}{2} = 5 \frac{1}{2}$$

\*IF CORRECTLY  
REPEATED ON THE  
OPPOSITE SIDE = +1

$$5 \frac{1}{2} + 1 = 6 \frac{1}{2}$$

DETAIL OF MARK  
ALLOCATION FOR  
THE SHAFT

NUT CONSTRUCTION ✓7

DETAIL OF MARK  
ALLOCATION FOR  
NUT AND BOLT

PAPER 2 QUESTION 4  
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Orthographic projection of a mechanical assembly showing front, top, and right views. The front view is a large oval with a central vertical shaft and a semi-circular top. The top view is a circle with concentric circles and a central square. The right view is a rectangle with a semi-circular top. Various parts are labeled with numbers 1-7 and 'CL' for center lines. Checkmarks and numbers indicate mark allocation for center lines.

ASSESSMENT CRITERIA		
RIGHT VIEW		
1	SHAFT	5
2	M12 NUT	4
3	WASHER	1
4	LOCKING LEVER	4½
5	BASE	9
6	GUIDE PIN	1
7	CUTTING PLANE	3
SUBTOTAL		27½
GENERAL		
1	CENTRE LINES	4
2	ASSEMBLY	6
SUBTOTAL		10

MARK ALLOCATION  
FOR CENTRE LINES  
(8 x ½ = 4)

PAPER 2 QUESTION 4  
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