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SA EXAM  
PAPERS



**ISEBE LEMFUNDO LEMPUMA KOLONI  
EASTERN CAPE EDUCATION DEPARTMENT  
OOS-KAAP ONDERWYSDEPARTEMENT**

**NATIONAL SENIOR CERTIFICATE**

**GRADE 12**

**ENGINEERING GRAPHICS AND DESIGN P2**

**SEPTEMBER 2020**

**PREPARATORY EXAMINATION  
MARKING GUIDELINES**

**MARKS: 200**

**TIME: 3 hours**

**These marking guidelines consist of 6 pages.**

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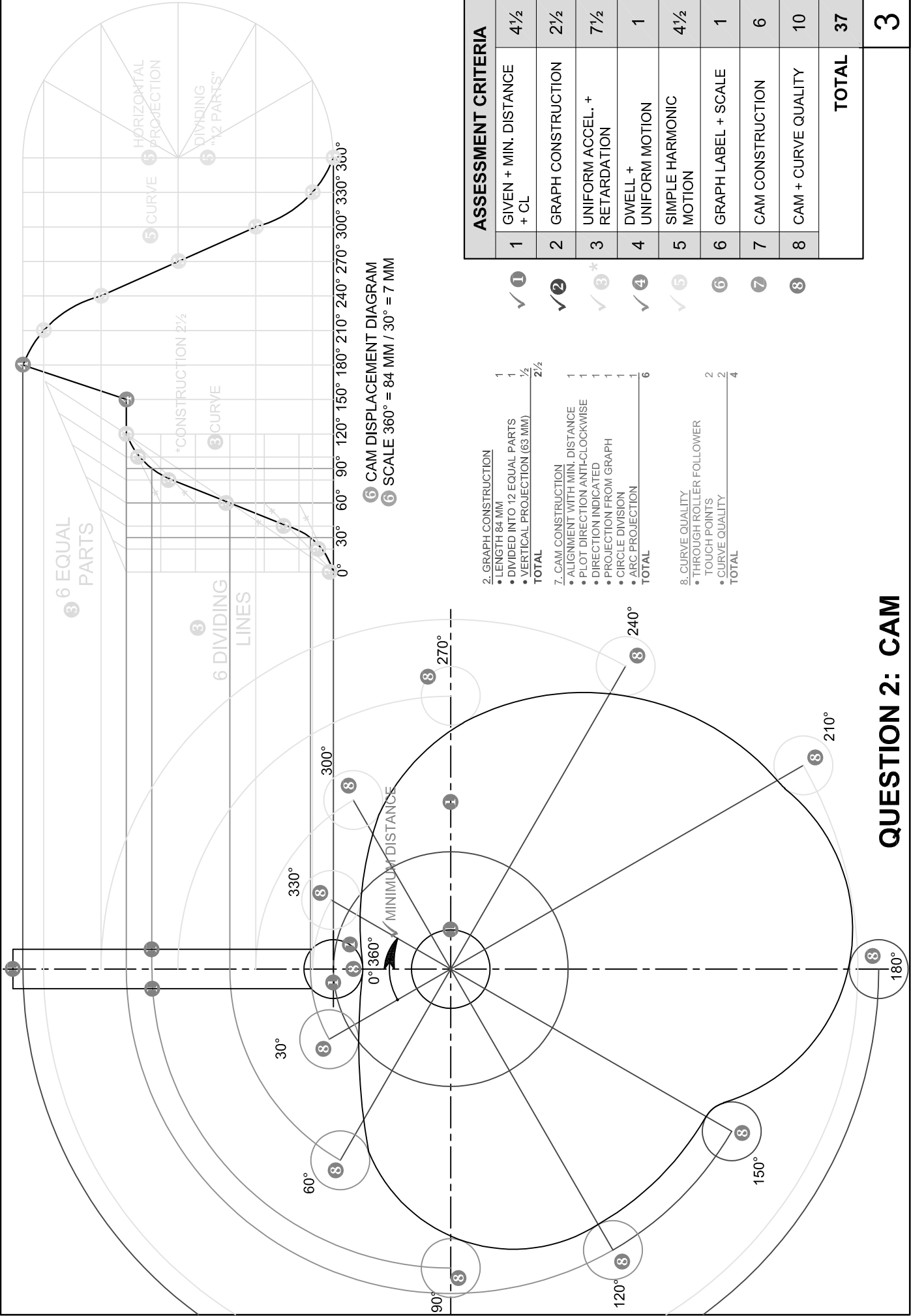
## QUESTION 1: ANALYTICAL (MECHANICAL)

ANSWERS		
1	AMATHOLE	1
2	043 7640 488	1
3	120	1
4	REDDY	1
5	CSK Ø3 HOLE IN ROD	1
6	COUNTERSUNK	1
7	OIL (LUBE) HOLE	1
8	SQUARE	1
9	BRONZE	1
10	14	1
11	TOP VIEW	2
12	FULL SECTION	2
13	HALF SECTION	2
14	REVOLVED SECTION	1
15	Ø5	2
	Ø6	2
	Ø2	2
	$25 + 195 + 15 = 235$	2
16		4
<b>TOTAL</b>		<b>29</b>

**ANSWER 16**

FH ●



2. GRAPH CONSTRUCTION
- LENGTH 84 MM
  - DIVIDED INTO 12 EQUAL PARTS
  - VERTICAL PROJECTION (63 MM)
- TOTAL 2 1/2
7. CAM CONSTRUCTION
- ALIGNMENT WITH MIN. DISTANCE
  - PLOT DIRECTION ANTI-CLOCKWISE
  - DIRECTION INDICATED
  - PROJECTION FROM GRAPH
  - CIRCLE DIVISION
  - ARC PROJECTION
- TOTAL 6
8. CURVE QUALITY
- THROUGH ROLLER FOLLOWER TOUCH POINTS
  - CURVE QUALITY
- TOTAL 4

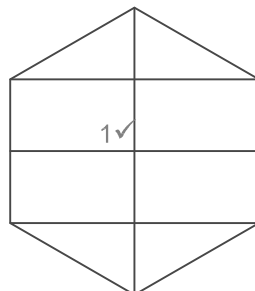
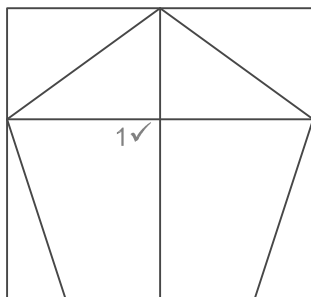
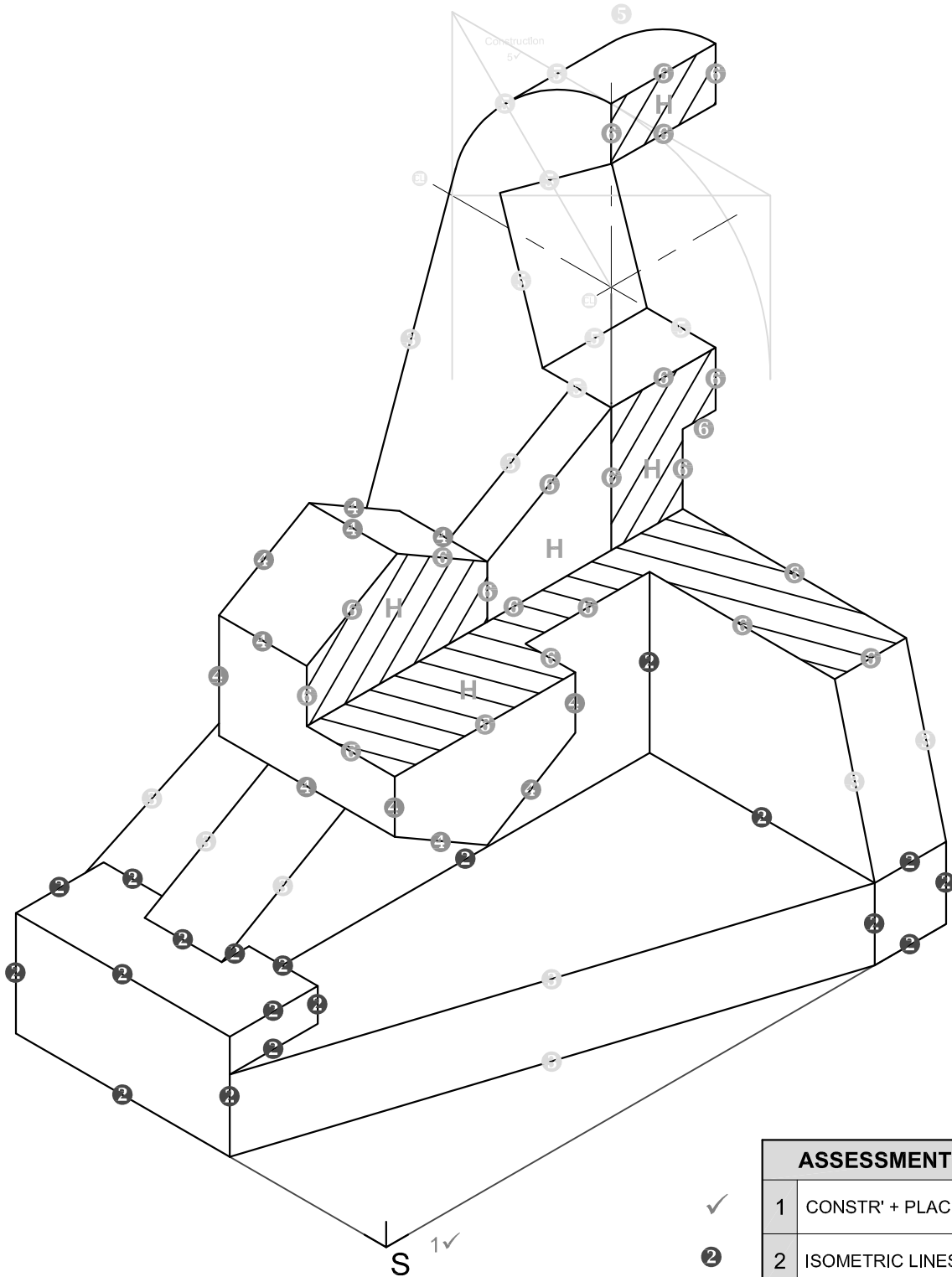
ASSESSMENT CRITERIA	
1	GIVEN + MIN. DISTANCE + CL
2	GRAPH CONSTRUCTION
3	UNIFORM ACCEL. + RETARDATION
4	DWELL + UNIFORM MOTION
5	SIMPLE HARMONIC MOTION
6	GRAPH LABEL + SCALE
7	CAM CONSTRUCTION
8	CAM + CURVE QUALITY
<b>TOTAL</b>	

- ✓ 1
- ✓ 2
- ✓ 3\*
- ✓ 4
- ✓ 5
- 6
- 7
- 8

**QUESTION 2: CAM**

<b>3</b>
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### QUESTION 3: ISOMETRIC

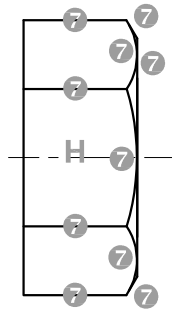
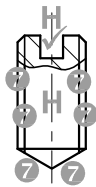
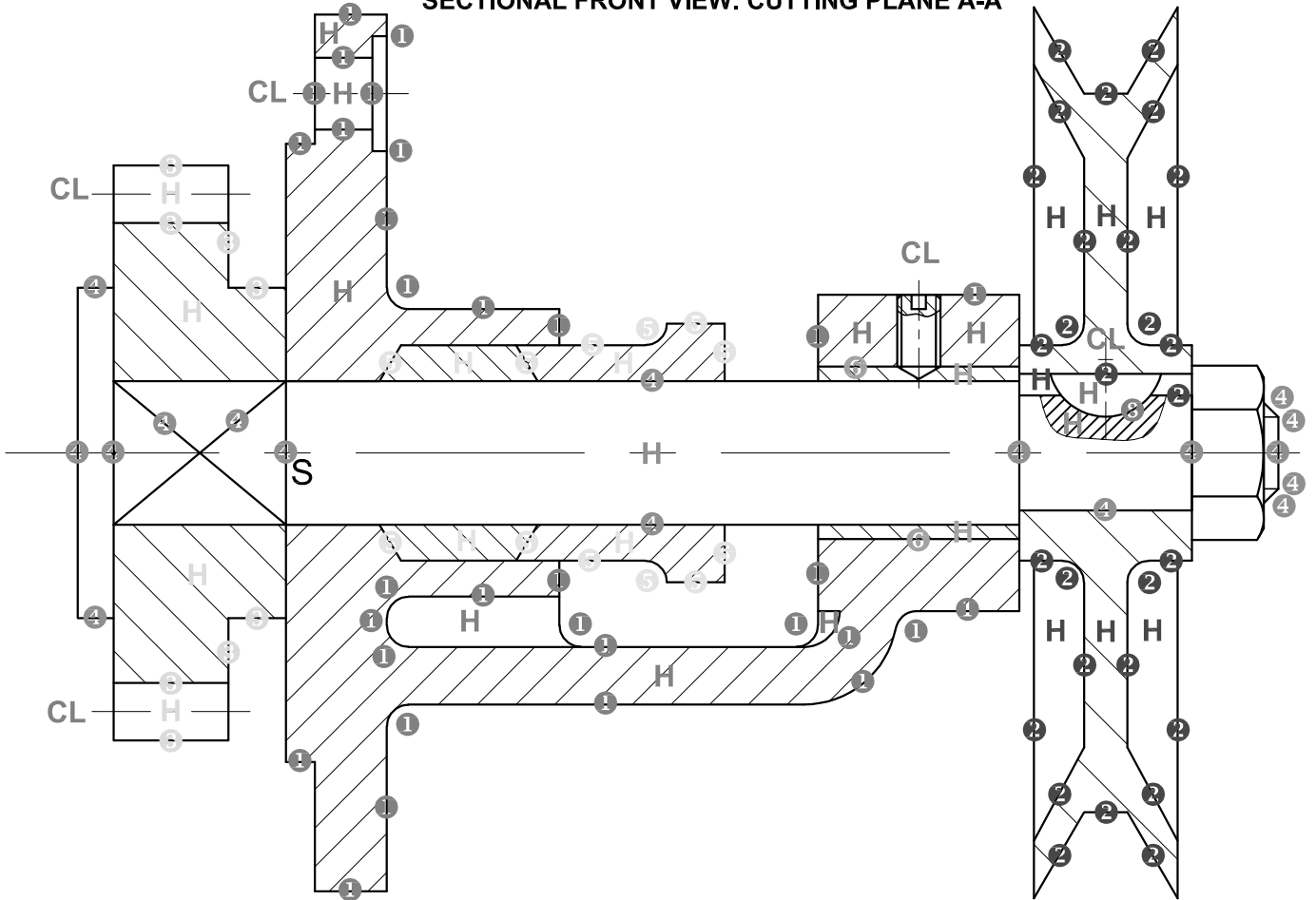


ASSESSMENT CRITERIA		
✓ 1	CONSTR' + PLACEMENT	3
2	ISOMETRIC LINES	9½
3	RIB	4½
4	HEXAGON	5½
5	CIRCLE + PENTAGON	6
6 H	SECTION + HATCHING	13½
<b>TOTAL</b>		<b>42</b>

**4**

# QUESTION 4: MECHANICAL ASSEMBLY

## SECTIONAL FRONT VIEW: CUTTING PLANE A-A



### ASSESSMENT CRITERIA

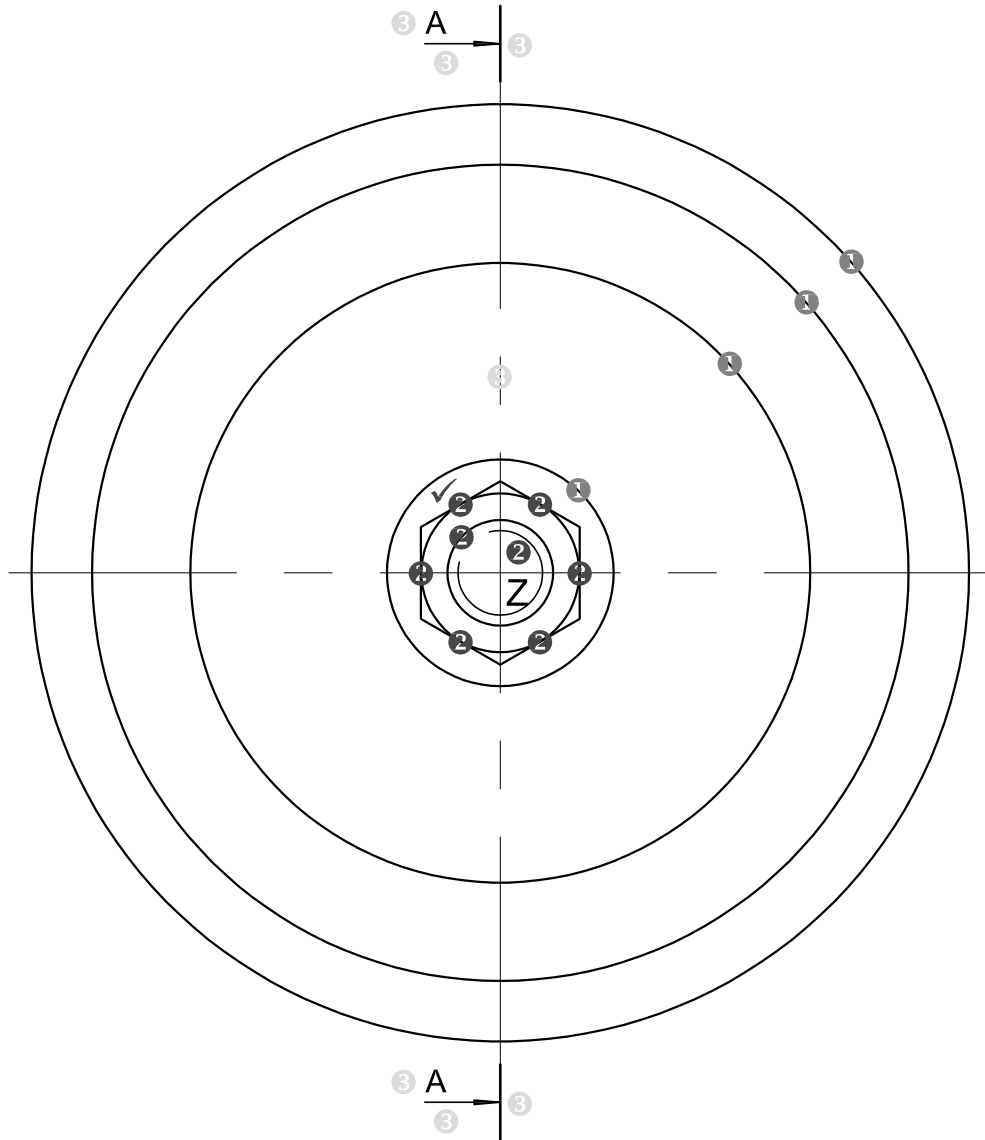
#### SECTIONAL FRONT VIEW

① H	1	HOUSING	20
② H	2	PULLEY	17½
③ H	3	GEAR	6
④ H	4	SHAFT	9½
⑤ H	5	SUPPORT + PACKAGE	8
⑥ H	6	BUSH	2
⑦ H	7	M14 NUT + GRUB SCREW	10½
⑧ H	8	KEY	1
CL	9	CENTRE LINES	2½
	10	ASSEMBLY	4½
<b>SUB-TOTAL</b>			<b>81½</b>

**5**

# QUESTION 4: MECHANICAL ASSEMBLY

## RIGHT VIEW



ASSESSMENT CRITERIA		
RIGHT VIEW		
①	1 PULLEY	2
✓ ②	2 M14 NUT	5
③	3 SHAFT	3½
<b>SUB-TOTAL</b>		<b>10½</b>

**6**