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NATIONAL SENIOR CERTIFICATE

GRADE 12

ENGINEERING GRAPHICS AND DESIGN P2

SEPTEMBER 2020

**PREPARATORY EXAMINATION
MARKING GUIDELINES**

MARKS: 200

TIME: 3 hours

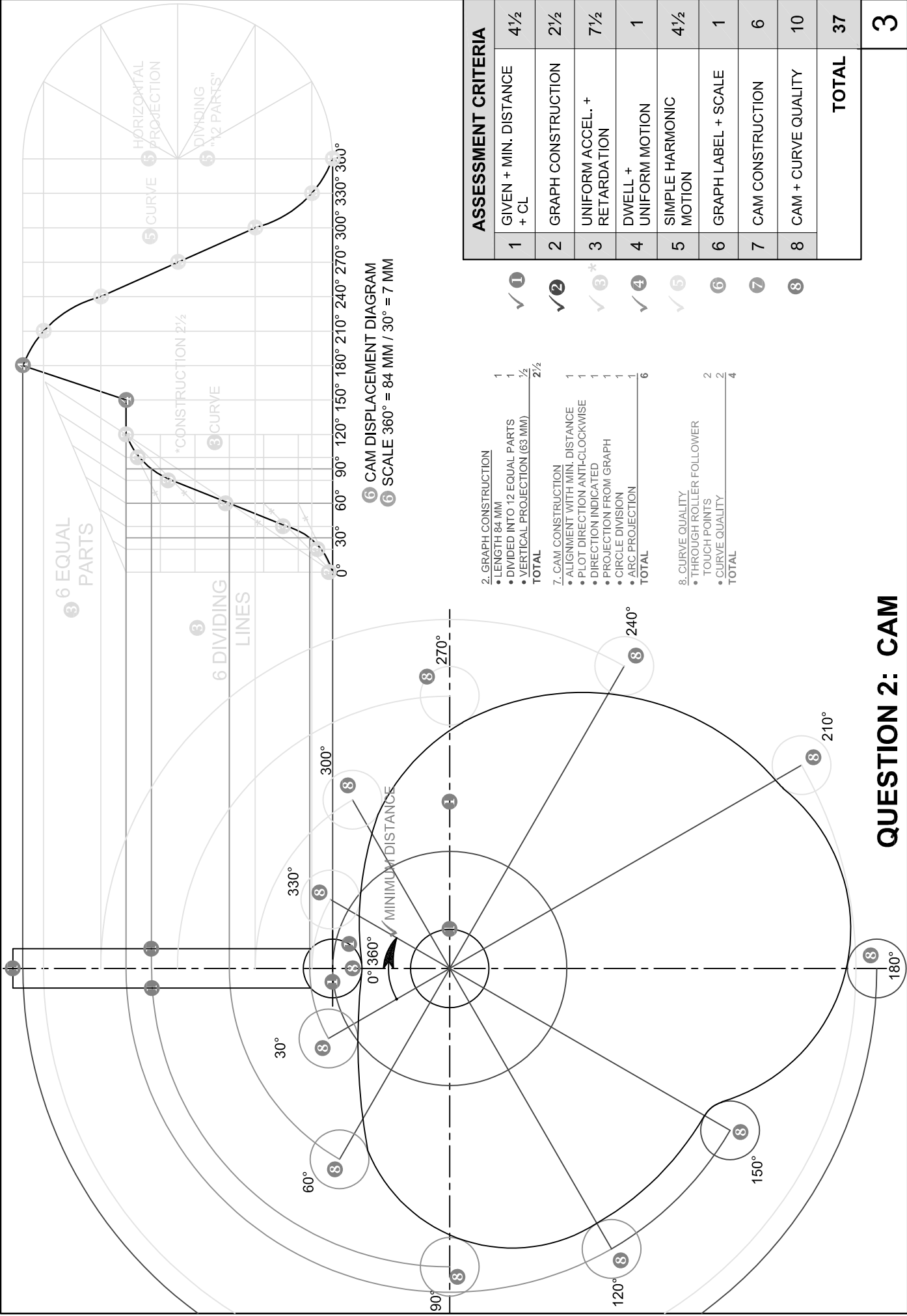
These marking guidelines consist of 6 pages.

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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
TOTAL		29

ANSWER 16



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
TOTAL	
37	

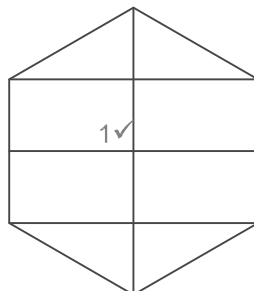
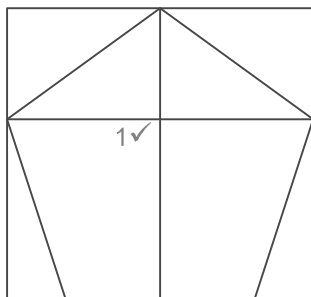
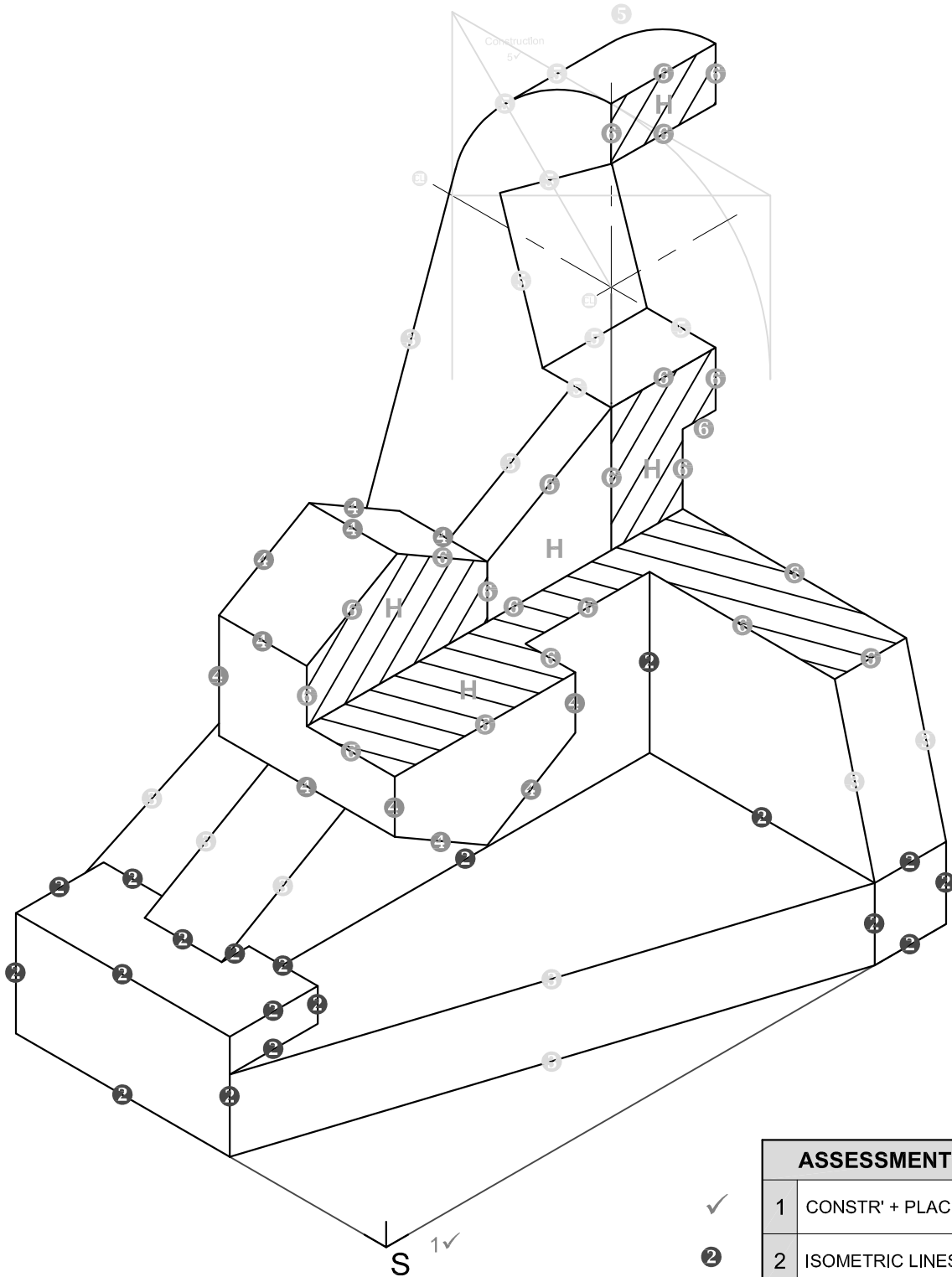
- ✓ 1
- ✓ 2
- ✓ 3*
- ✓ 4
- ✓ 5
- 6
- 7
- 8

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

QUESTION 2: CAM

3

QUESTION 3: ISOMETRIC

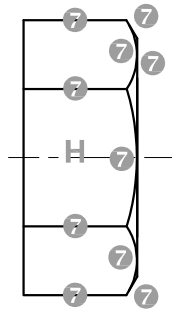
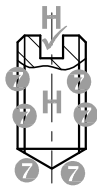
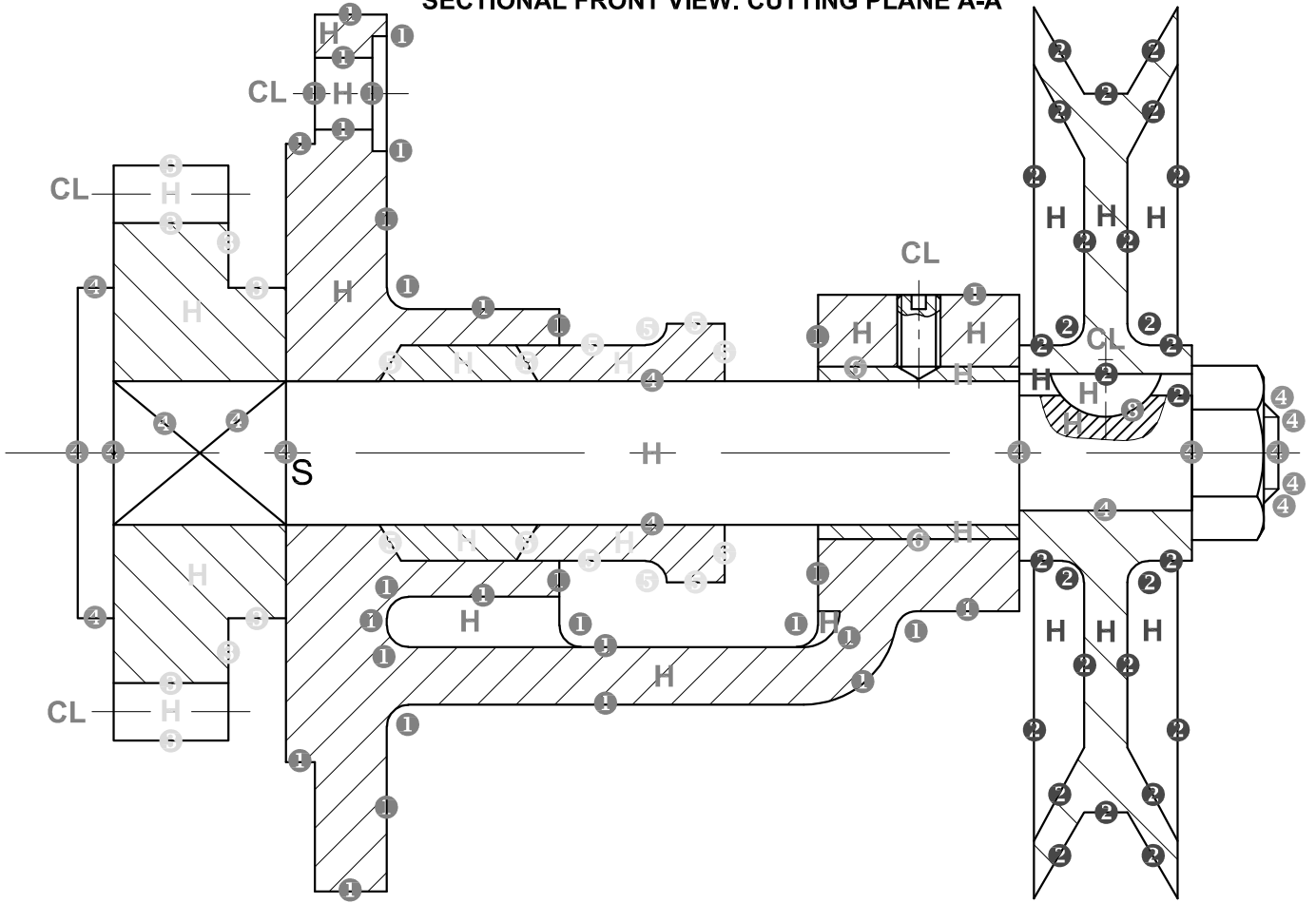


ASSESSMENT CRITERIA		
✓ 1	CONSTR' + PLACEMENT	3
2	ISOMETRIC LINES	9½
3	RIB	4½
4	HEXAGON	5½
5	CIRCLE + PENTAGON	6
6 H	SECTION + HATCHING	13½
TOTAL		42

4

QUESTION 4: MECHANICAL ASSEMBLY

SECTIONAL FRONT VIEW: CUTTING PLANE A-A



ASSESSMENT CRITERIA

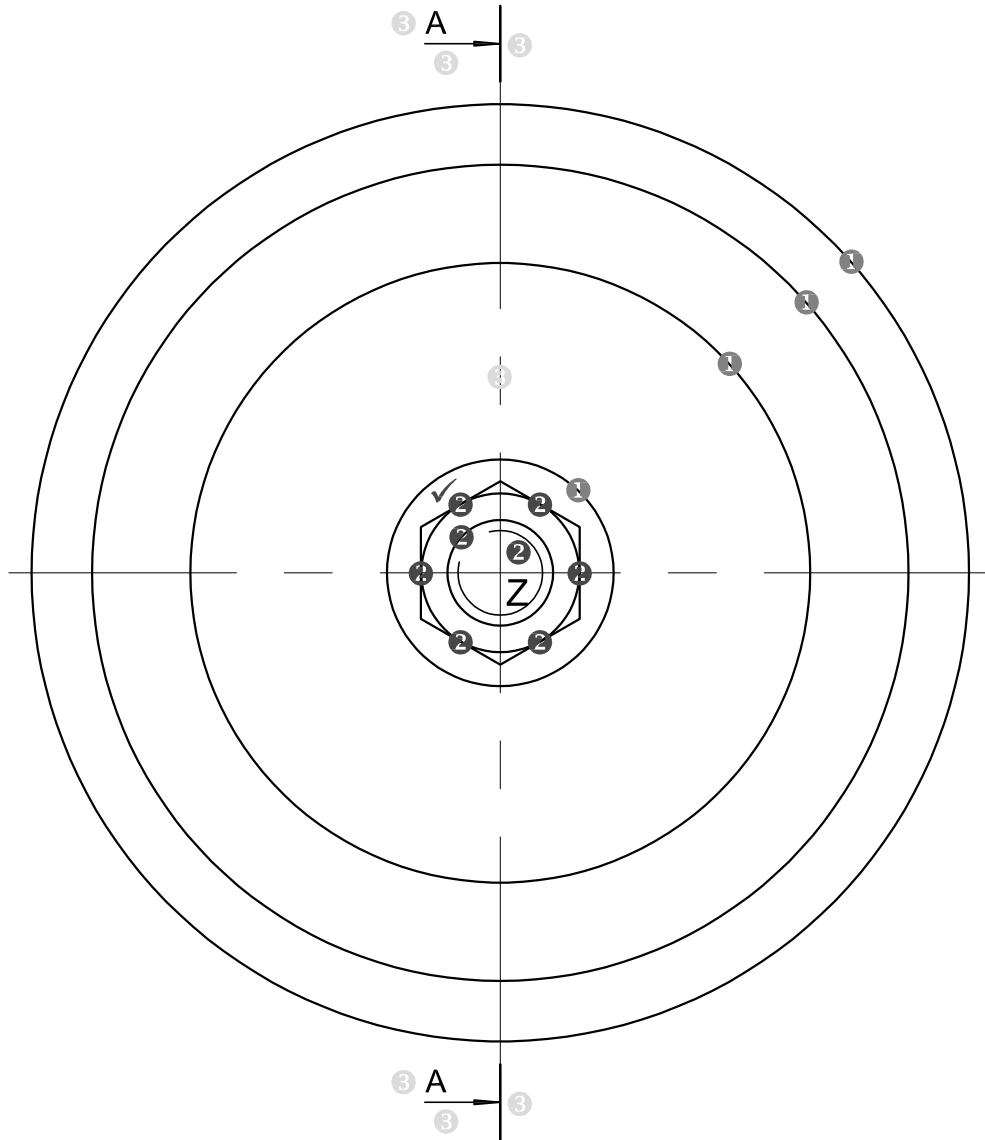
SECTIONAL FRONT VIEW

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
SUB-TOTAL			81½

5

QUESTION 4: MECHANICAL ASSEMBLY

RIGHT VIEW



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

6