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**NATIONAL SENIOR CERTIFICATE**



**GRADE 12**

**ENGINEERING GRAPHICS AND DESIGN P2**

**SEPTEMBER 2020**

**PREPARATORY EXAMINATION  
MARKING GUIDELINES**

**MARKS: 200**

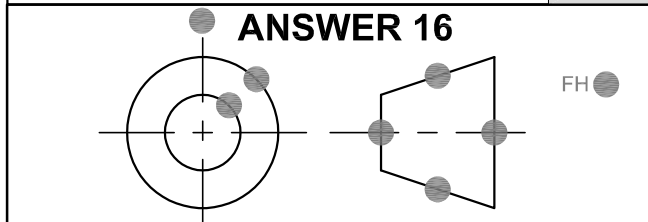
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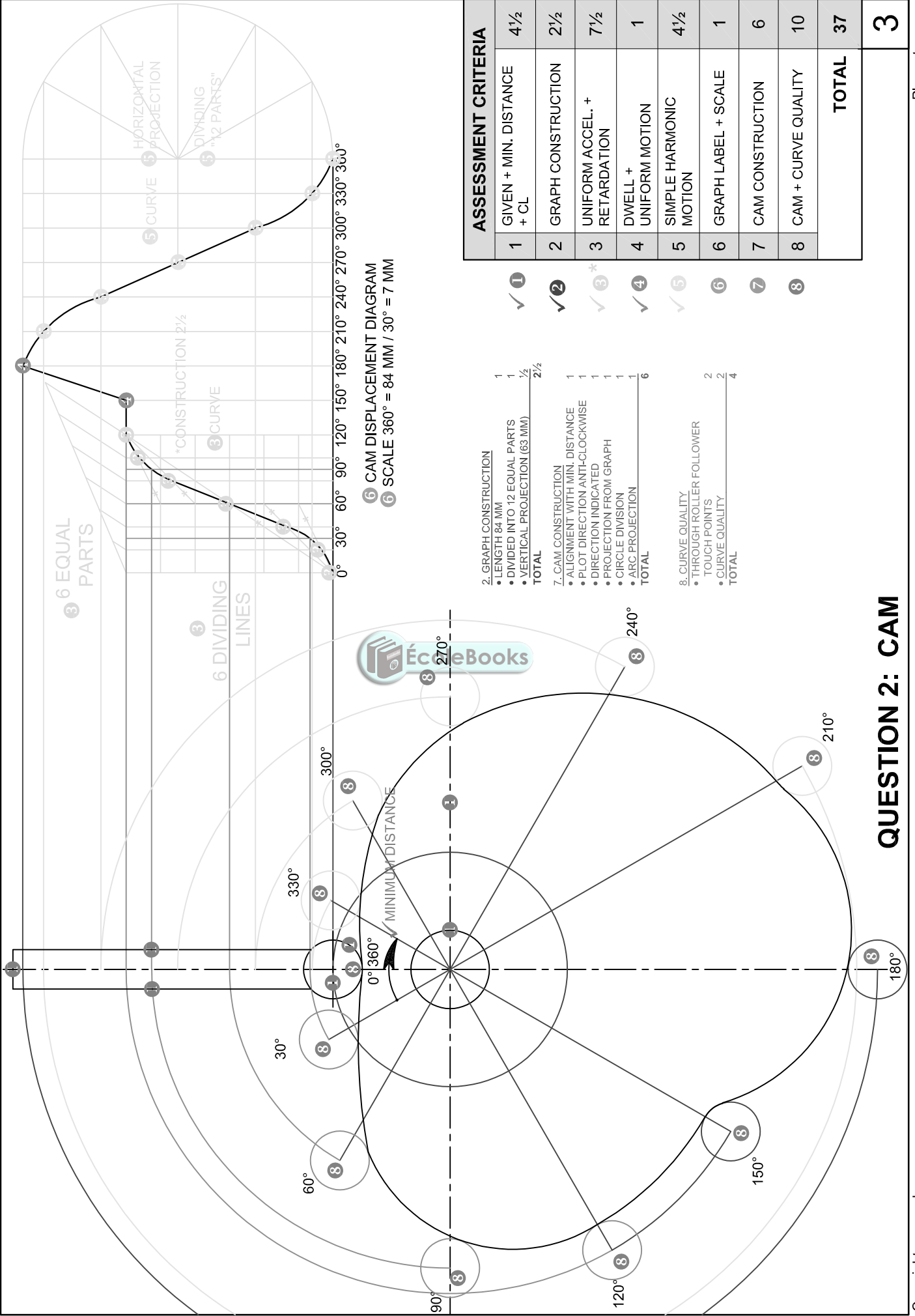
**These marking guidelines consist of 6 pages.**

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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>





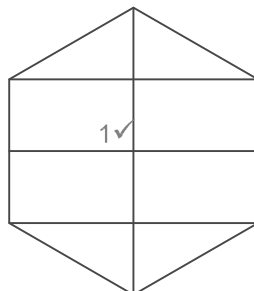
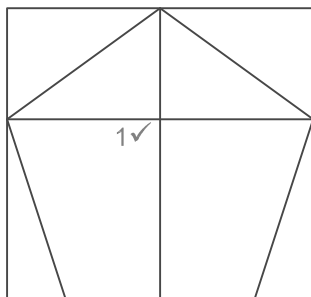
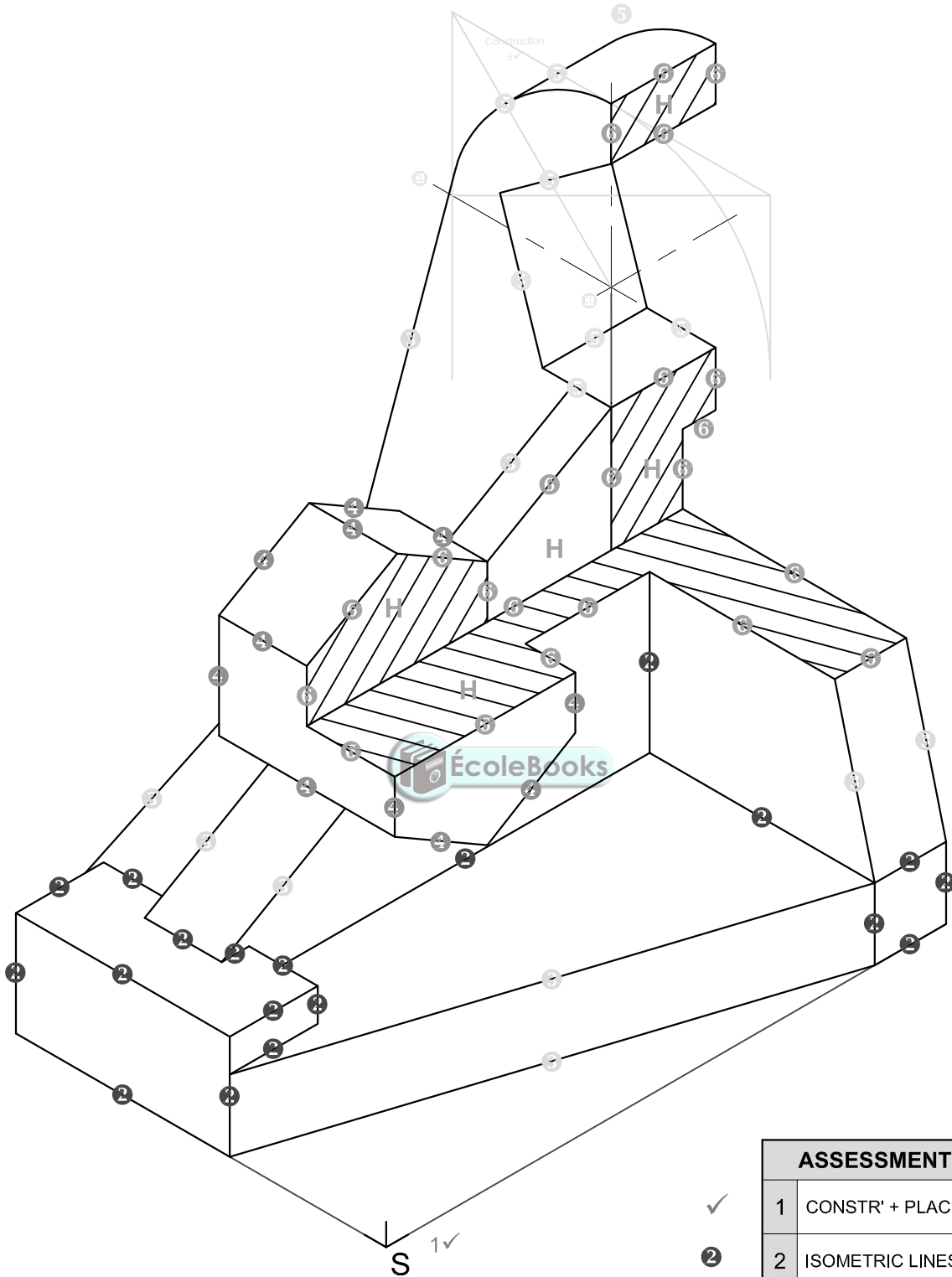
ASSESSMENT CRITERIA		
1	GIVEN + MIN. DISTANCE + CL	4 1/2
2	GRAPH CONSTRUCTION	2 1/2
3	UNIFORM ACCEL. + RETARDATION	7 1/2
4	DWELL + UNIFORM MOTION	1
5	SIMPLE HARMONIC MOTION	4 1/2
6	GRAPH LABEL + SCALE	1
7	CAM CONSTRUCTION	6
8	CAM + CURVE QUALITY	10
<b>TOTAL</b>		<b>37</b>

- 1 ✓
  - 2 ✓
  - 3 ✓\*
  - 4 ✓
  - 5 ✓
  - 6
  - 7
  - 8
2. GRAPH CONSTRUCTION
- LENGTH 84 MM 1
  - DIVIDED INTO 12 EQUAL PARTS 1
  - VERTICAL PROJECTION (63 MM) 1/2
  - TOTAL 2 1/2**
7. CAM CONSTRUCTION
- ALIGNMENT WITH MIN. DISTANCE 1
  - PLOT DIRECTION ANTI-CLOCKWISE 1
  - DIRECTION INDICATED 1
  - PROJECTION FROM GRAPH 1
  - CIRCLE DIVISION 1
  - ARC PROJECTION 1
  - TOTAL 6**
8. CURVE QUALITY
- THROUGH ROLLER FOLLOWER 2
  - TOUCH POINTS 2
  - CURVE QUALITY 2
  - TOTAL 4**

**QUESTION 2: CAM**

**3**

### QUESTION 3: ISOMETRIC

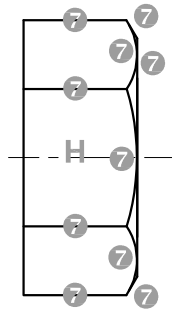
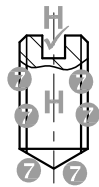
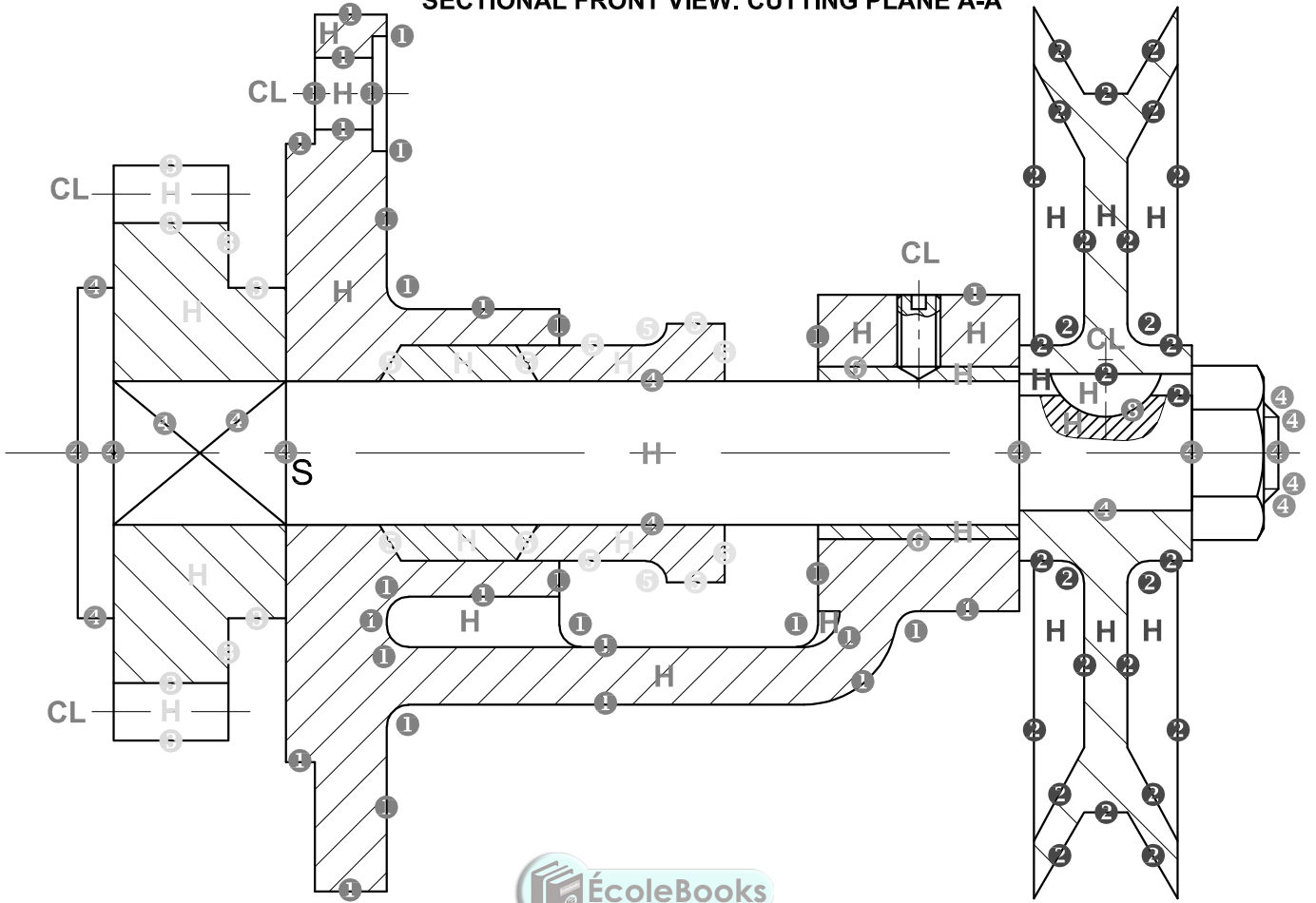


ASSESSMENT CRITERIA		
✓ 1	CONSTR' + PLACEMENT	3
2	ISOMETRIC LINES	9½
3	RIB	4½
4	HEXAGON	5½
5	CIRCLE + PENTAGON	6
6 H	SECTION + HATCHING	13½
<b>TOTAL</b>		<b>42</b>

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# QUESTION 4: MECHANICAL ASSEMBLY

## SECTIONAL FRONT VIEW: CUTTING PLANE A-A



### ASSESSMENT CRITERIA

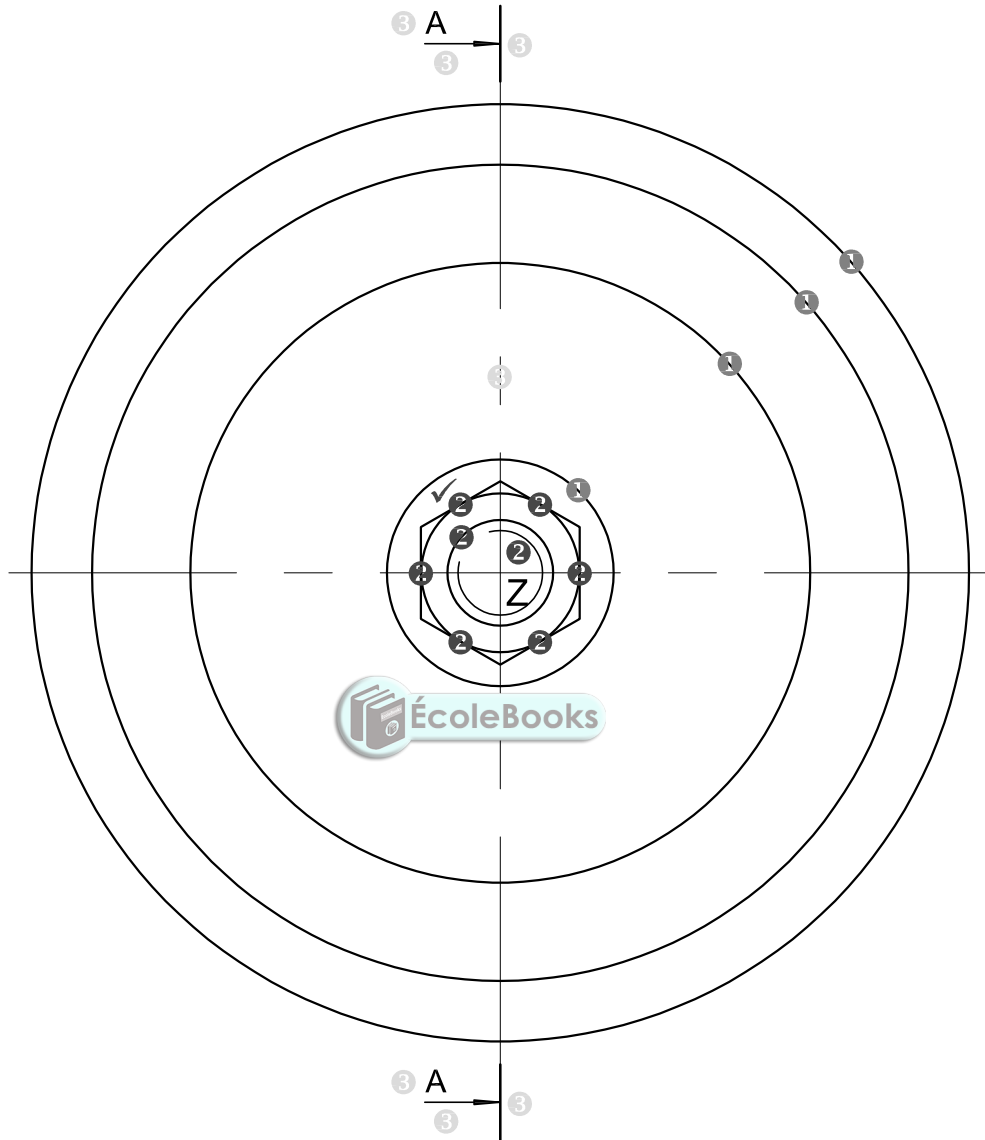
#### SECTIONAL FRONT VIEW

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
SUB-TOTAL			10½

6