

HILLCREST HIGH SCHOOL

GRADE 10

ENGINEERING GRAPHICS AND DESIGN
JUNE EXAMINATION 2021

MARKS :
TIME :

60 :
2 HOURS :

This question paper consists of 4 pages.

NAME :

GRADE :

INSTRUCTIONS AND INFORMATION

1. The question paper consists of TWO questions.
2. Answer ALL the questions.
3. All drawings must be drawn to scale 1:1, unless otherwise stated.
4. The questions must be answered on the answer sheets provided.
5. All the answer sheets must be re-stapled in numerical sequence and handed in irrespective of whether the question was attempted or not.
6. Careful time management is essential in order to complete all the questions.
7. Print your NAME in the block provided on every answer sheet.
8. All answers must be drawn accurately and neatly.
9. Any details or dimensions not given must be assumed in good proportion.

| FOR OFFICIAL USE ONLY | | | | | | QUESTION | LEARNER'S MARK | MODERATED MARK |
|-----------------------|--|--|--|----|--|----------|----------------|----------------|
| ONE | | | | 38 | | | | |
| TWO | | | | 22 | | | | |
| TOTAL | | | | 60 | | | | |

FINAL CONVERTED
MARK

100

CHECKED BY

QUESTION 1: MECHANICAL ASSEMBLY

Given:

- The exploded isometric drawing of the parts of a CLAMP and BRACKET assembly, showing the position of each part relative to all the others.
- Orthographic views of each of the parts of the assembly

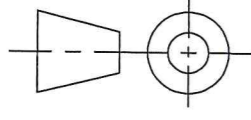
Instructions:

- Draw to a scale of 1:1 and in third angle orthographic projection, on the next page. The following view of the assembled parts of the assembly:
 1.1. A sectional front view on cutting plane A-A, as seen from the direction arrow shown on the exploded isometric drawing. The cutting plane, which passes vertically through the centre of the assembly, is shown on part 2.
 All drawing must comply with the guidelines contained in the SANS 10111.

NOTE:

- Planning is essential
- Show THREE faces for the nut and TWO faces of the bolt head and ALL necessary construction.
- Label the sectioned view.
- Print the title and the scale in the space provided.
- NO hidden detail is required.

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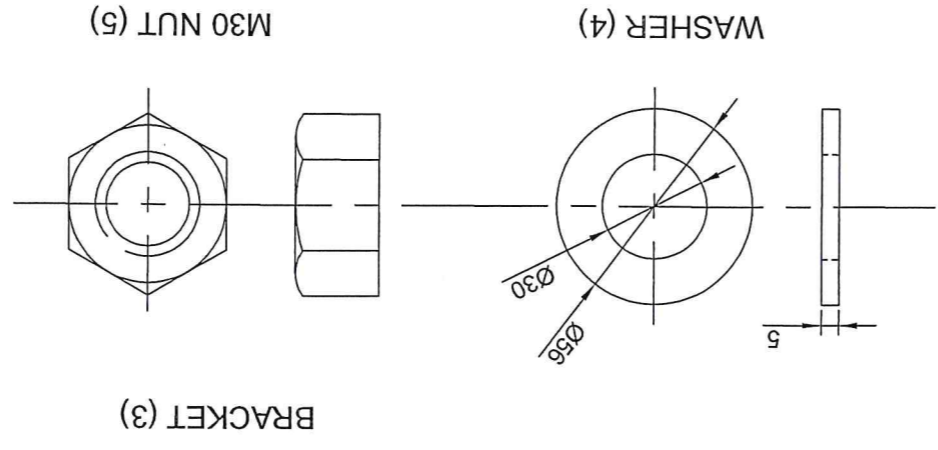
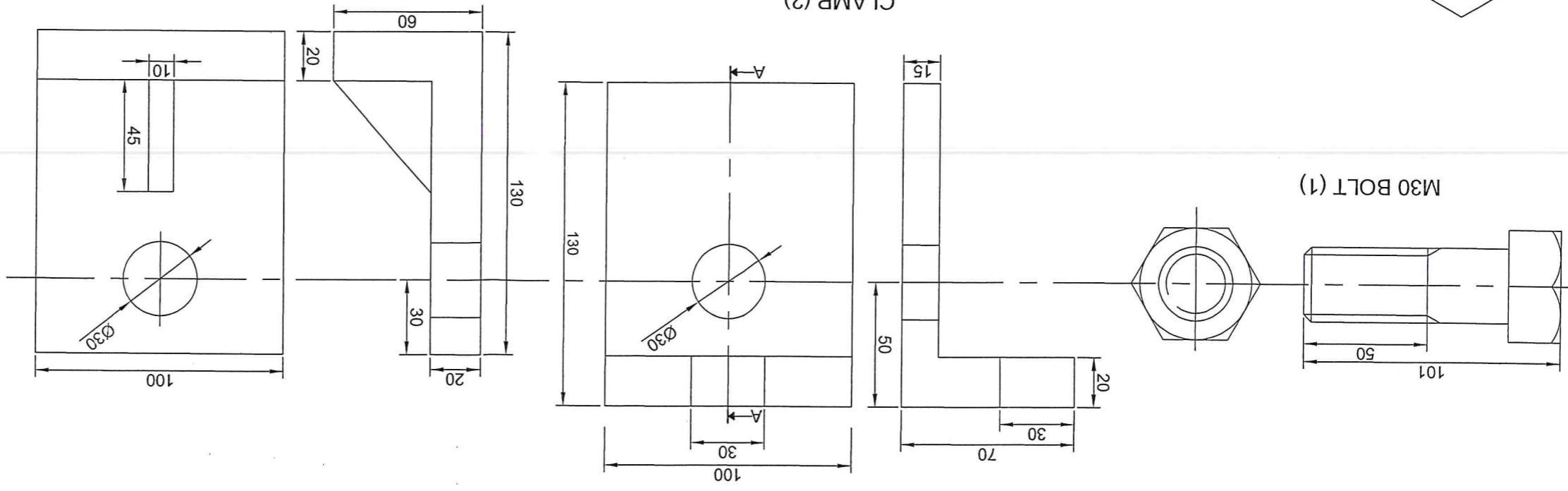
PARTS LIST

| | | |
|---|----------|---|
| 1 | M30 BOLT | 1 |
| 2 | CLAMP | 1 |
| 3 | BRACKET | 1 |
| 4 | WASHER | 1 |
| 5 | M30 NUT | 1 |

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 031 562 0050

ALL DIMENSIONS ARE
 IN MILLIMETRES

ALL UNSPECIFIED
 RADII ARE R4



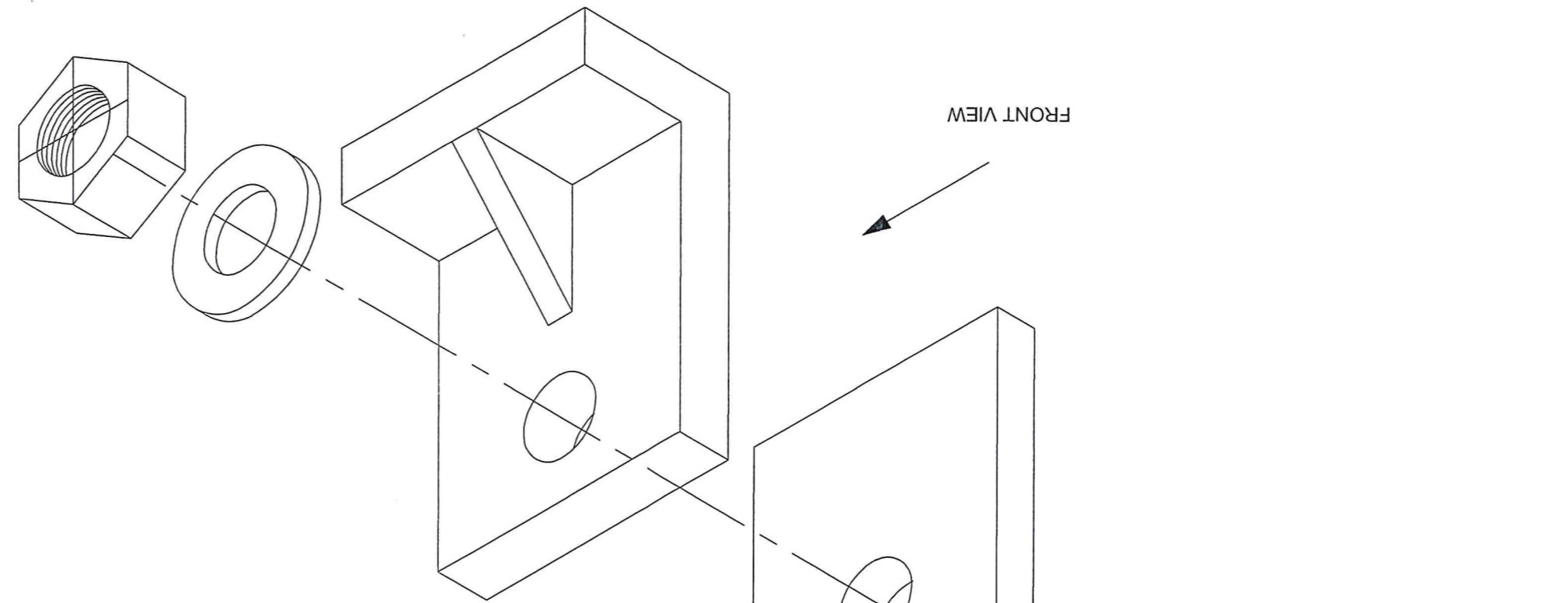
M30 NUT (5)

WASHER (4)

BRACKET (3)

CLAMP (2)

M30 BOLT (1)



FRONT VIEW

| | | |
|-----------|----------|---|
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| NAME | | |

| ASSESSMENT CRITERIA | | | |
|---------------------|----|------------------------|-------|
| | | TITLE | SCALE |
| 1 | 3½ | CLAMP | |
| 2 | 4½ | BRACKET | |
| 3 | 10 | BOLT | |
| 4 | 5 | NUT | |
| 5 | 2 | WASHER | |
| 6 | 5 | HATCHING& N-HAT. | |
| 7 | 5 | ASSEMBLY & CENTRE LINE | |
| 8 | 3 | TITLE, SCALE, LABEL | |
| | 38 | TOTAL | |

QUESTION 2: ISOMETRIC

Given:

- The front, top and right view of a casting.
- The position of point A on the drawing sheet.

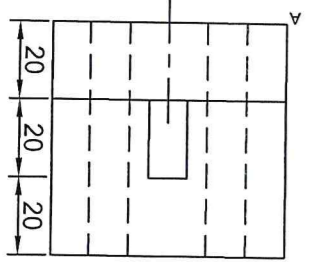
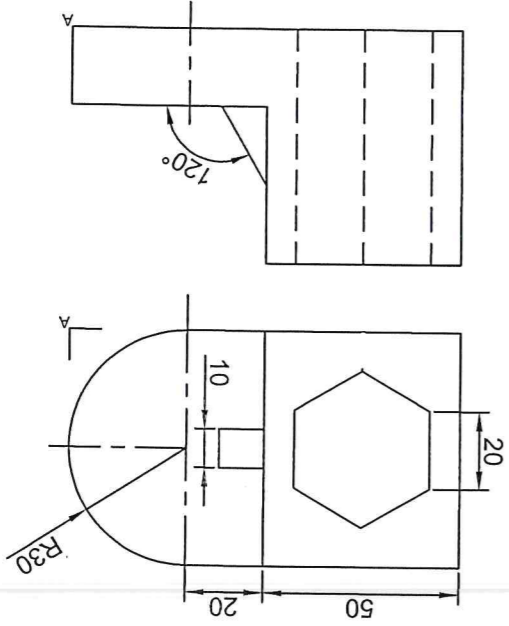
Instructions:

- 1.1. Using a Scale 1:1, convert the orthographic views into an isometric drawing.

NOTE:

- Make A the starting pint of the drawing.
- Show ALL construction.
- NO hidden detail is required.

[22]



A

ASSESSMENT CRITERIA

| | | |
|--------------|-----------------------|-----------|
| 1 | PLACEMENT & AUXILIARY | 4 |
| 2 | ISOMETRIC LINES | 6 |
| 3 | NON-ISO. LINES | 6 |
| 4 | CIRCLE & CENTRE LINE | 6 |
| TOTAL | | 22 |

NAME

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