HILLCREST HIGH SCHOOL

MID-YEAR EXAMINATION

ENGINEERING, GRAPHICS & DESIGN

GRADE 10

2015

MARKS: 100 **TIME**: 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. This question paper consists of **4 pages** including the cover page and **3 questions**.
2. **All** questions must be answered.
3. Unless specified otherwise, all questions are to be completed to a **scale of 1:1**.
4. **All** answer sheets must be re-stapled in numerical order, even questions that are not attempted/blank.
5. All **construction work** must be shown, even if a stencil was used.
6. Print your **NAME** neatly on each page.
7. Use only the **drawing sheets** provided.
8. Your drawings should reflect **neatness** and **accuracy**.
9. All dimensions or detail not given may be **assumed** in **good proportion**.

QUESTION	SECTION	MARK	MAXIMUM
1	GEOMETRIC CONSTRUCTIONS		25
2	TANGENCY		35
3	ISOMETRIC PROJECTION		40
TOTAL			200
SYMBOL			100

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QUESTION 1
GEOMETRIC CONSTRUCTIONS

The following details refer to the adjacent sub-questions:

SPECIFICATIONS:

- Use instruments only.

REQUIREMENTS:

1. Use your knowledge on constructions and answer the questions in the space provided.

- Show all construction.

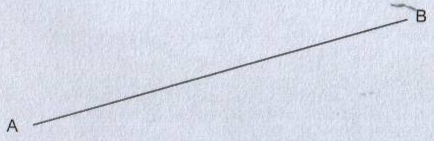
ASSESSMENT CRITERIA

You will be assessed on your ability to do the following:

- divide a line into 8 equal parts (5)
- draw a pentagon with 20mm sides (6)
- draw an inscribed circle to a triangle (7)
- draw a circumscribed circle to a triangle (7)

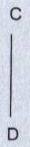
QUESTION 1.1

Divide the given line AB into 8 equal parts. (5)



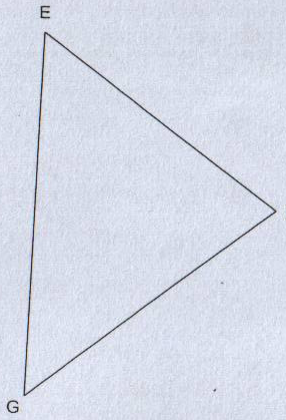
QUESTION 1.2

Draw a pentagon using CD as a base side. (6)



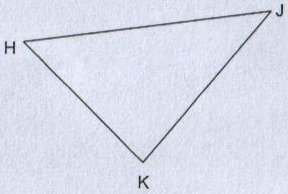
QUESTION 1.3

Draw an inscribed circle to the given triangle EFG. (7)



QUESTION 1.4

Draw a circumscribed circle to the given triangle HJK. (7)



25 MARKS

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QUESTION 2
TANGENTS

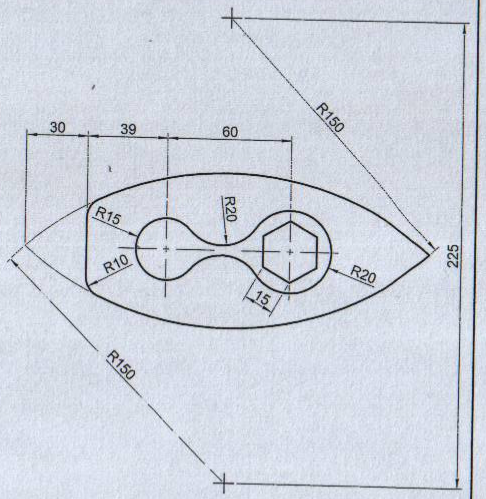
The figure below shows a SURFBOARD. A slip mat is positioned on the board.
Draw the SURFBOARD, using tangents and blending of arcs drawing techniques.

- Show all construction, centre lines and calculation.
- Show all points of contact and arc centres.

ASSESSMENT CRITERIA

You will be assessed on your ability to do the following:

• draw the arc centres	6
• draw the points of contact	8
• draw the arcs and lines	16
• show all calculation	1
• draw the centre lines	1



SHOW YOUR CALCULATION HERE

40 MARKS

ANSWER SHEET 2

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QUESTION 3
ISOMETRIC PROJECTION

The following details refer to a CASTING:

SPECIFICATIONS:

- Given front view, top view and right view drawn in third angle orthographic projection.

- All measurements are given.

REQUIREMENTS:

3.1. Draw the Isometric of the Casting.

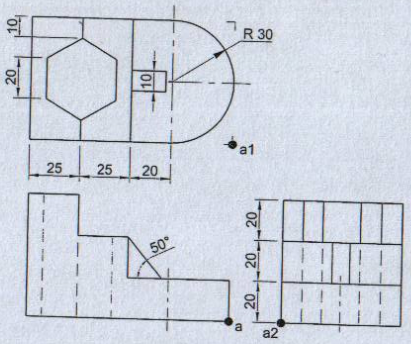
3.2. Show all construction.

3.3. Make point A your lowest point.

ASSESSMENT CRITERIA

You will be assessed on your ability to do the following:

• draw the isometric	29
• draw the isometric circles	5
• draw the isometric circle construction	2
• draw the centre lines	1
• show all construction	3



40 MARKS

NAME: