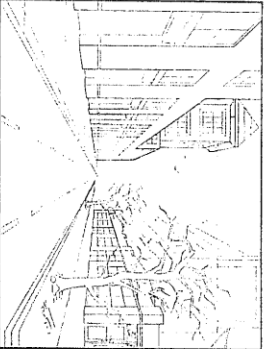
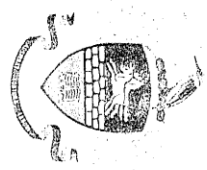
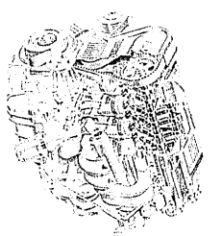


**HILLCREST HIGH SCHOOL
ENGINEERING GRAPHICS AND DESIGN EXAM
TRIALS EXAM**



GRADE 12
2019
PAPER 2



TIME: 3 hours
Examiner: Mrs Tonkin

MARKS: 200
Moderator: Mr Victor

NB: READ THE INSTRUCTIONS

1. This paper consists of 6 pages including the cover page and 4 questions.
2. Answer ALL questions.
3. Take note of the mark allocation in each question.
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. 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.

QUESTION	SECTION	MARK	MODERATE	MAXIMUM
1	MECHANICAL ANALYTICAL			30
2	LOCI			42
3	ISOMETRIC			40
4	MECHANICAL ASSEMBLY			88
TOTAL				200
SYMBOL				100

NAME: _____
TEACHER: _____

QUESTION 2: LOCI
NOTE: answer QUESTIONS 2.1 and 2.2.

2.1 MECHANISM

Given:

- A schematic drawing of a mechanism consisting of crank OA, connecting rod AB, sliding guide C, sliding rod DE, pin F and horizontal groove GH.
- The position of centre point O on the drawing sheet

Specifications:

- The positions of O, C and groove GH are fixed
- Connecting rod AB is pin joined to crank OA at A
- Sliding rod DE is pin joined to connecting rod AB at D
- Pin F is fixed to sliding rod DE
- AB = 120 mm
- DE = 120 mm
- AD = 40 mm
- DF = 40 mm

Method:

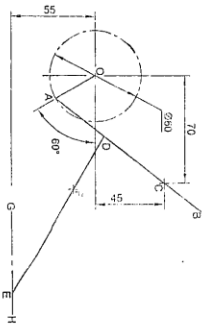
As crank OA rotates in a clockwise direction, connecting rod AB freely slides through swivel guide C. Point E of sliding rod DE reciprocates along groove GH during the rotation.

Instructions:

- Draw, to scale 1:1, the given schematic drawing of the mechanism.
- Trace the locus generated by point F for ONE complete rotation of crank OA.

Show ALL necessary construction.

ASSESSMENT CRITERIA 2.1		
1	GIVEN	5
2	CONSTRUCTION	7
3	POINTS + CURVE	8
SUBTOTAL		20



2.2 AUGER (HELIX)

Given:

- The incomplete front view and the left view of an auger with PO indicating the starting position.
- The position of centre point P on the drawing sheet

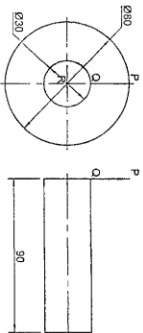
Specifications:

- Pitch : 60 mm
- Turns : ONE AND A HALF
- Direction : Right-handed

Instructions:

- Draw, to scale 1 : 1, the given left view and the complete front view of the auger.
- Show ALL necessary construction.
- No hidden detail is required.

[22]



ASSESSMENT CRITERIA 2.2		
1	GIVEN + CENTRE LINES	4
2	CONSTRUCTION	6
3	OUTSIDE HELIX + CURVE QUALITY	8
4	INSIDE HELIX + SHAFT	4
SUBTOTAL 2.2		22
SUBTOTAL 2.1		20
TOTAL		42

Please turn over

3

QUESTION 3: ISOMETRIC DRAWING

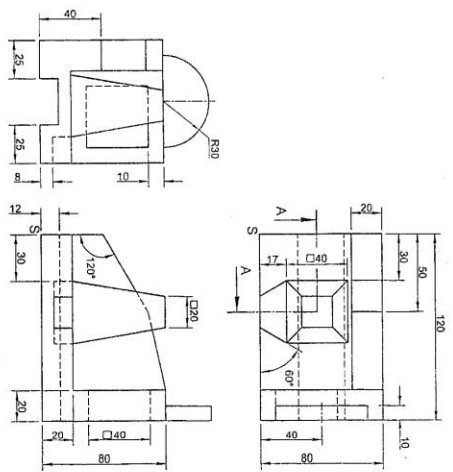
- Given:
- The front view, top view and left view of a fig
 - The position of point S on the drawing sheet

Instructions:

Using scale 1 : 1, convert the orthographic views of the fig into a sectional isometric drawing on cutting plane A-A.

- Make S the lowest point of the drawing.
- Show ALL necessary construction.
- NO hidden detail is required.

[40]



ASSESSMENT CRITERIA		
1	AUX. VIEW + FLANGING	2 ½
2	ISOMETRIC + NON-ISOMETRIC LINES	23
3	SECTIONED SURFACES	9
4	ISOMETRIC CIRCLES + CIRCLE CONSTR.	5 ½
TOTAL		40

Please turn over

4

5

-----S-----

FOR OFFICIAL USE ONLY	
INCORRECT SCALE	
INCORRECT HATCHING	
PARTS NOT ASSEMBLED	
TOTAL	

ASSESSMENT CRITERIA

TOP VIEW		Points	Points	Max. Points
1	BODY	5 1/2		
2	ADJUSTING SCREW	6		
3	PLATE	1		
4	SLIDE BLOCK	2 1/2		
5	SPACER	1		
6	TOOL HOLDER	1		
7	M16 BOLT	2 1/2		
SUBTOTAL		19		

SECTIONAL FRONT VIEW

1	BODY	13		
2	ADJUSTING SCREW	10		
3	PLATE	3		
4	SLIDE GUIDE	3 1/2		
5	SLIDE BLOCK	4 1/2		
6	SPACER	3		
7	TOOL HOLDER	10		
8	M16 BOLT	8		
SUBTOTAL		55		

GENERAL

1	CENTRE LINES	3		
2	CUTTING PLANE	4		
3	ASSEMBLY	7		
SUBTOTAL		14		
TOTAL		88		
PENALTIES (-)				
GRAND TOTAL				