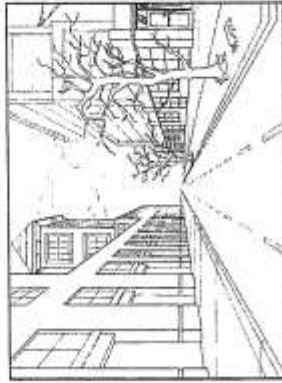


HILLCREST HIGH SCHOOL
ENGINEERING GRAPHICS AND DESIGN EXAM
TRIALS EXAM



GRADE 12
 2018
 PAPER 2

TIME: 3 hours

Examiner: Mrs Tonkin

MARKS: 209

Moderator: Mr Victor

NB: READ THE INTRUCTIONS

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	MECHANISM & CAM			38
3	ISOMETRIC			44
4	MECHANICAL ASSEMBLY			97
TOTAL				209
SYMBOL				100

NAME: _____
 TEACHER: _____

QUESTION 2a: LOCI OF A MECHANISM

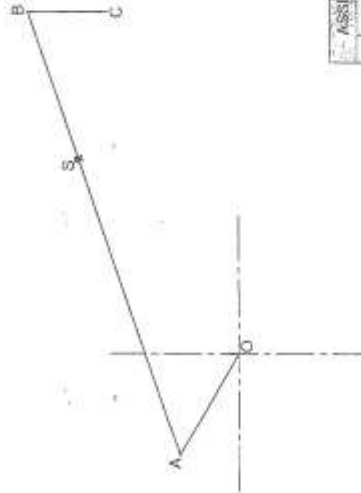
Given:

- Arm OA which rotates about a fixed point O.
- Arm AB which is hinged to OA at point A.
- A fixed pivot point S through which arm AB passes.
- BC is a pendulum arm which is hinged to AB and always remains vertical.

Instructions:

- Draw the locus of point C as arm OA rotates about O for one complete revolution.
- Show all constructions.

[19]



ASSESSMENT CRITERIA				TOTAL		
1	CONSTRUCTIONS	3		2a	LOC OF MESH	19
2	PROJECTIONS AB	8		2b	CAM	19
3	PROJECTIONS AC	5		2c		
4	LOCUS	4				
TOTAL				19	TOTAL	36

QUESTION 2b: CAM

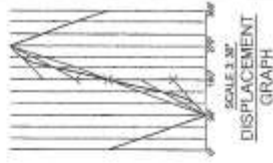
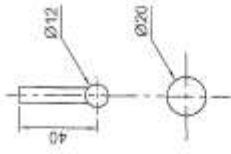
Given:

- A DISC CAM rotates in a clockwise direction imparting movement to a ROLLER ENDED FOLLOWER as indicated on the graph of displacement.
- The follower is positioned as shown in the diagram alongside.
- The CAM SHAFT has a diameter of 20mm.
- The minimum cam profile is 15mm.

Instructions:

- Project from the given graph and draw the profile of the cam for one complete revolution.
- Show all projections and constructions.

[16]



ASSESSMENT CRITERIA			
1	FOLLOWER POSITION	4	
2	PROJ & CONSTR	3	
3	FOLLOWER POSITIONS	8	
4	PROFILE	4	
5	LABELS	2	
TOTAL			19
NAME			
NAME			
			3

ASSESSMENT CRITERIA				
TOP VIEW				
QTY	DESCRIPTION	UNIT	QTY	AMOUNT
1	M4 BOLT	105	2	
2	BUSH	31	1	
3	SWIVEL	31	3	
4	FIXED ARM	31	2	
5	PN	31	4	
6	BUSH	31	2	
7	LOCKING PIN	31	1	
8	YORK	31	10	
9	MOUNTING BRACKET	31	4	
SUBTOTAL			31	
SECTIONAL FRONT VIEW				
1	M4 BOLT	105		
2	BUSH	31		
3	SWIVEL	31		
4	FIXED ARM	31		
5	SPRING WASHER	31		
6	M4 NUT	31	5	
7	PN	31	1	
8	YORK	31	9	
9	MOUNTING BRACKET	31	4	
SUBTOTAL			43	
GENERAL				
1	THIRD ANGLE		2	
2	CENTRE LINES		3	
3	SECTION A-A		4	
4	DATCHING		10	
5	ASSEMBLY		5	
6	MARK OF REPLY		5	
7	CORRECT ASSEMBLY		23	
SUBTOTAL			23	
TOTAL			97	

