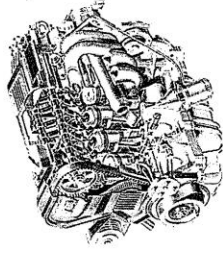
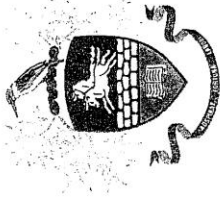
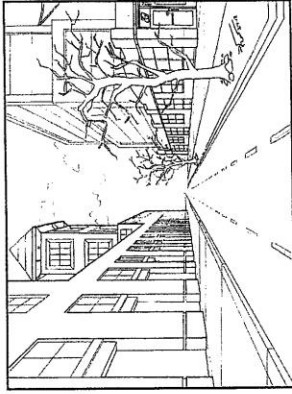


HILLCREST HIGH SCHOOL
ENGINEERING GRAPHICS AND DESIGN EXAM
MIDYEAR EXAM



GRADE 12
 2019
 PAPER 1

TIME: 3 hours
Examiner: Mrs Tonkin

MARKS: 224
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	CIVIL ANALYTICAL			30
2	SOLID GEOMETRY			50
3	PERSPECTIVE			41
4	CIVIL DRAWING			103
TOTAL				224
SYMBOL				100

NAME:
TEACHER:

QUESTION 1: ANALYTICAL (CWIL)

Given:
A site plan for a new dwelling and swimming pool, a title panel and a table of questions. The drawing has not been prepared to the indicated scale.

Instructions:
Complete the table below by neatly answering the questions, which all refer to the accompanying drawing and title panel. [30]

QUESTIONS	ANSWERS
1 On what date was the plan drawn?	1
2 Who printed the prepared drawing?	1
3 What change was made to the drawing on the 15-02-2016?	1
4 How wide is the driveway?	1
5 What is the fall of the sewerage line?	1
6 How high, in millimeters, is the perimeter wall?	1
7 What colour should a new dwelling on a site plan be presented in?	1
8 How deep is the municipal sewerage connection?	1
9 Name the feature at 1?	1
10 Name the feature at 2?	1
11 What does the line at 3 indicate?	2
12 Name the feature at 4?	1
13 Name the line at 5?	1
14 What elevation of the dwelling faces the servitude?	2
15 Which letter denotes the lowest corner on the stand?	2
16 Determine the shortest distance between the house and the pool? With reference to the sewerage line, identify and state the reason why the plan could not be approved.	2
17 Determine the length of the boundary wall in metres. Show all calculations.	3
18 Determine the measurement at G, and then find the total area of the new dwelling in square metres. Show all calculations.	3
19 In the space provided in the title panel, draw, in neat freehand, the ANNOTATION SYMBOL for a TREE that must be removed.	2
TOTAL	30

NOTE: Contractors must verify all dimensions and bearings on site. Architects to be notified immediately of any discrepancies.

20. In the space provided below, draw, in neat freehand, the SAANS 10143 convention for a TREE that must be removed.

REVISION	DATE	DESCRIPTION
2	20-02-2016	ADD PERIMETER WALL
1	15-02-2016	MOVE POOL

ARCHITECT'S SIGNATURE: _____

CLIENT'S SIGNATURE: _____

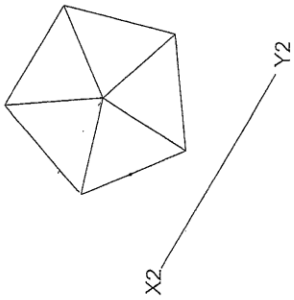
SITE PLAN	
PROJECT NUMBER: 654-3	DATE: 14-01-2016
REFERENCE CODE: JUN-2016-01	CHECKED BY: AYANDA
DRAWING NUMBER: P7/865	DATE: 15-01-2016
	PASSED BY: EDDIE
	DATE: 25-02-2016

PROPOSED NEW DWELLING FOR PIET LOTTER ON STAND 753 AT 45 ST. JOHN ROAD, WESTVILLE.

PRINTED BY	DATE OF PRINT
K.O. PRINTERS	10-02-2016

A.B.C.ARCHITECTS
22 WEST STREET
eTHEKWINI
Tel: 031 765 3818

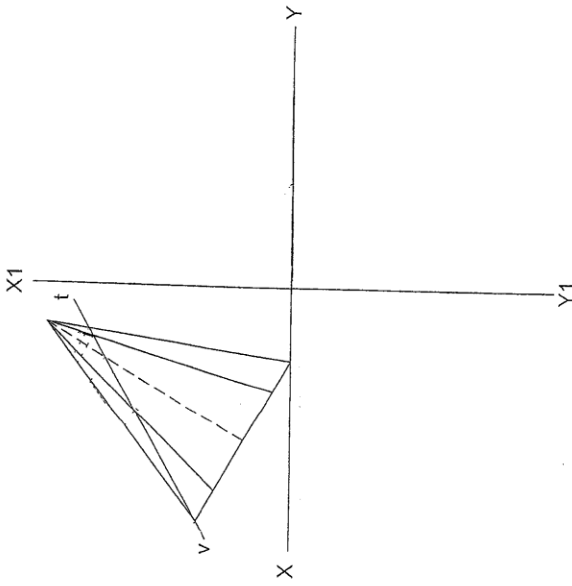




The figure shows the front view of a right regular pentagonal pyramid, drawn in First Angle Orthographic projection. The auxiliary view of the pyramid is also shown. The pyramid is inclined to the X-Y line and is cut by a cutting plane V-T.

Draw the following on the given axes:

- 2.1. the sectional top view (show all hidden detail);
- 2.2. the sectional left view (show all hidden detail);
- 2.3. the development of the sectioned pyramid;
- 2.4. the true shape of the sectioned pyramid;
- 2.5. show all construction.



- ASSESSMENT CRITERIA**
You will be assessed on your ability to do the following:
- TOP VIEW**
- draw the points of section 5
 - complete the sectioned top view 4
 - show all hidden detail 1
 - X-Hatch the sectioned area 2
- LEFT VIEW**
- draw the points of section 5
 - complete the sectioned left view 4
 - show all hidden detail 2
 - X-Hatch the sectioned area 2
- DEVELOPMENT**
- draw the points for development 10
 - determine the true length of a pyramid generator 4
 - transfer points to true length line 2
- TRUE SHAPE**
- draw the points for the true shape 5
 - determine true shape 2
 - X-Hatch the true shape 2

2

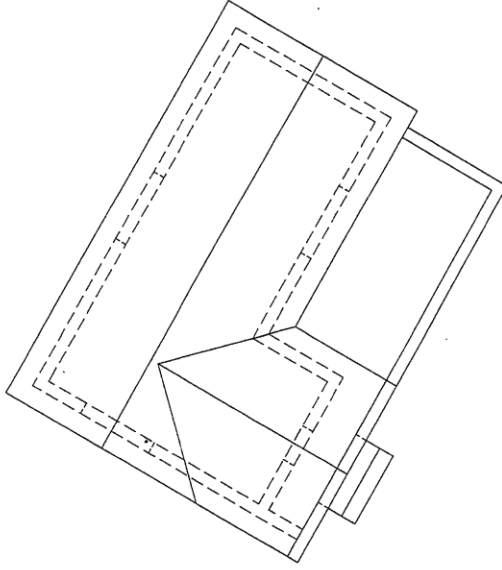
NAME _____

QUESTION 3 PERSPECTIVE

Given:
A plan and two elevations of a house, as well as the Picture Plane (PP), Horizon Line (HL), Ground Line (GL) and Station Point (SP).

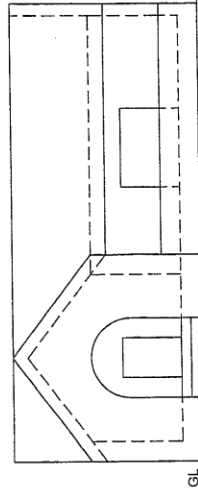
- Instructions:**
- Determine the vanishing points and label them.
 - Draw the two-point perspective view of the house.

Notes:
No hidden detail must be shown.
Show all the construction lines. [41]

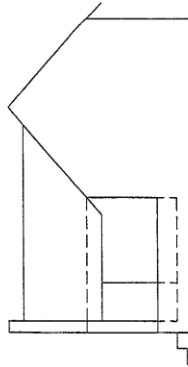


PP

HL



GL



SP

ASSESSMENT CRITERIA	
1 Vanishing points and labels	3
2 Constructions	6
3 Roof	8
4 Walls and openings	18
5 Steps and arc	6
TOTAL	41

NAME
NAME

QUESTION 4: CIVIL DRAWING

Given:

- The incomplete west elevation of a dwelling, showing the common brick walls, the entrance opening, the roof, dimensions and notes
- The incomplete floor plans showing the walls, position of the doors, the windows, the fixtures, the electrical features and room designations
- Roof notes and a schematic diagram of a roof truss
- The incomplete detail of the footing/ foundation, of the internal and external wall and slab detail
- A door and window schedule
- A table of electrical symbols
- A table of roof components and the rainwater down pipe
- A table of fixtures
- The incomplete floor plan of the new dwelling, drawn to scale 1:50, on page 5

Instructions:

- Answer this question on page 5.
- Using the given incomplete floor plan, draw to scale 1:50 and in first-angle orthographic projection, the following views of the new change room:
 - 3.1 The complete floor plan
 - 3.2 The south elevation
 - 3.3 A sectional elevation on cutting plane A-A
- ALL drawings must comply with the guidelines and conventions contained in the SANS 10143.

SPECIFICATIONS:

- THE FLOOR PLAN - scale 1:50
 - Add the following features to the drawing:
 - ALL the doors and windows
 - ALL fixtures as indicated by abbreviations
 - ALL electrical features as indicated by numbers
 - ALL hatching detail
- THE WEST ELEVATION - scale 1:50
 - Show the following features on the drawing:
 - The outside walls, sliding door and step
 - The roof detail including the gutter and rainwater down pipe, barge boards and fascia board
 - The finished floor level
- THE SECTIONAL ELEVATION - scale 1:20
 - Show the following features on the drawing:
 - The sectional part of: foundation, wall, slab and roof detail
 - The window detail with a double lintel above the window
 - ALL features to the north of the cutting plane A-A
 - ALL hatching detail

Label the following:

- The room designations and floor finish
- The west elevation and the sectional elevation
- Using correct abbreviations, label the following features in the correct view: ground level, finished floor level and damp-proof course.

NOTE:

- ONLY the substructure hatching may be drawn in freehand.

[103]

WINDOW DETAIL

WH13	1700	1000
WH14	1950	1000
WH12	900	600

NOTES:

- 100 Z28 FIBRE CEMENT SILL LINER, ALL WINDOWS
- 100 Z28 FIBRE CEMENT LINTER, ALL WINDOWS
- WOOD FRAME, ALL WINDOWS ARE 45° W/C
- 700 LINTELS 100 X 100mm ABOVE WINDOWS AND DOORS

FIXTURES/FEATURES:

- D1, D2, D3: DOOR OPENINGS
- W112, W13 & W14: WINDOW OPENINGS
- S: SINK
- WC: TOILET
- VC: WASH BASIN
- WB: WASH BASIN

SCHEMATIC DIAGRAM OF A ROOF TRUSS

ROOF NOTES:

- 1) ROOF SHEETING ON 75 X 50 mm PURLINS @ 900 mm c/c
- 2) 115 X 38 mm ROOF TRUSS ON 115 X 38 mm WALL PLATE
- 3) ROOF FITCH 18°
- 4) 6mm PLASTER CEILING BOARD ON 38 X 35mm BRANDING @ 700mm c/c
- 5) 40mm X 65mm RECTANGULAR GUTTERS ON BOTH ENDS

ROOF COMPONENTS

200	ROOF CAP
115 x 38	WALL PLATE
75 x 50	PURLINS
140 x 86	GUTTER

ELECTRICAL FITTINGS/FIXTURES:

- CEILING WALL MOUNTED LIGHTS
- SWITCH SOCKET OUTLET
- TWO-POLE ONE WAY LIGHT SWITCH
- SINGLE-POLE ONE WAY LIGHT SWITCH
- DISTRIBUTION BOARD
- WASH BASIN TUBES
- SINGLE-POLE DIMMER LIGHT SWITCH

DOOR SCHEDULE

TO FIT	TO FIT	40
2050		

INTERNAL DOOR FRAME AND DOOR (D1)

SLIDING DOOR FRAME AND DOOR (D3)

EXTERNAL DOOR (D4)

ELECTRICAL SYMBOLS

-
- ⊕
- ⊖
- ⊗
- ⊙
- ⊘
- ⊚
- ⊛
- ⊜
- ⊝
- ⊞
- ⊟
- ⊠
- ⊡
- ⊢
- ⊣
- ⊤
- ⊥
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- ⊿

RAINWATER DOWNPIPE

18°

75

TABLE OF FIXTURES & DIMENSIONS

500	850	500	500	400	750	600
TO FIT	TO FIT	TO FIT	TO FIT	TO FIT	TO FIT	TO FIT
BUILT-IN CUPBOARDS	WASH BASIN (WB)	SHOWER DETAIL (SH)	WC DETAIL			

