

EDUCATION

UMLAZI / ILEMBE / UGU

MANUFACTURING ENGINEERING
& TECHNOLOGY

**GRADE
12**

**ENGINEERING GRAPHICS AND DESIGN
PAPER 1**

JUNE EXAMINATION 2013

MARKS : 150
TIME : 2 ½ HOURS
This question paper consists of 5 pages.

INSTRUCTIONS AND INFORMATION

1. The question paper consists of THREE 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

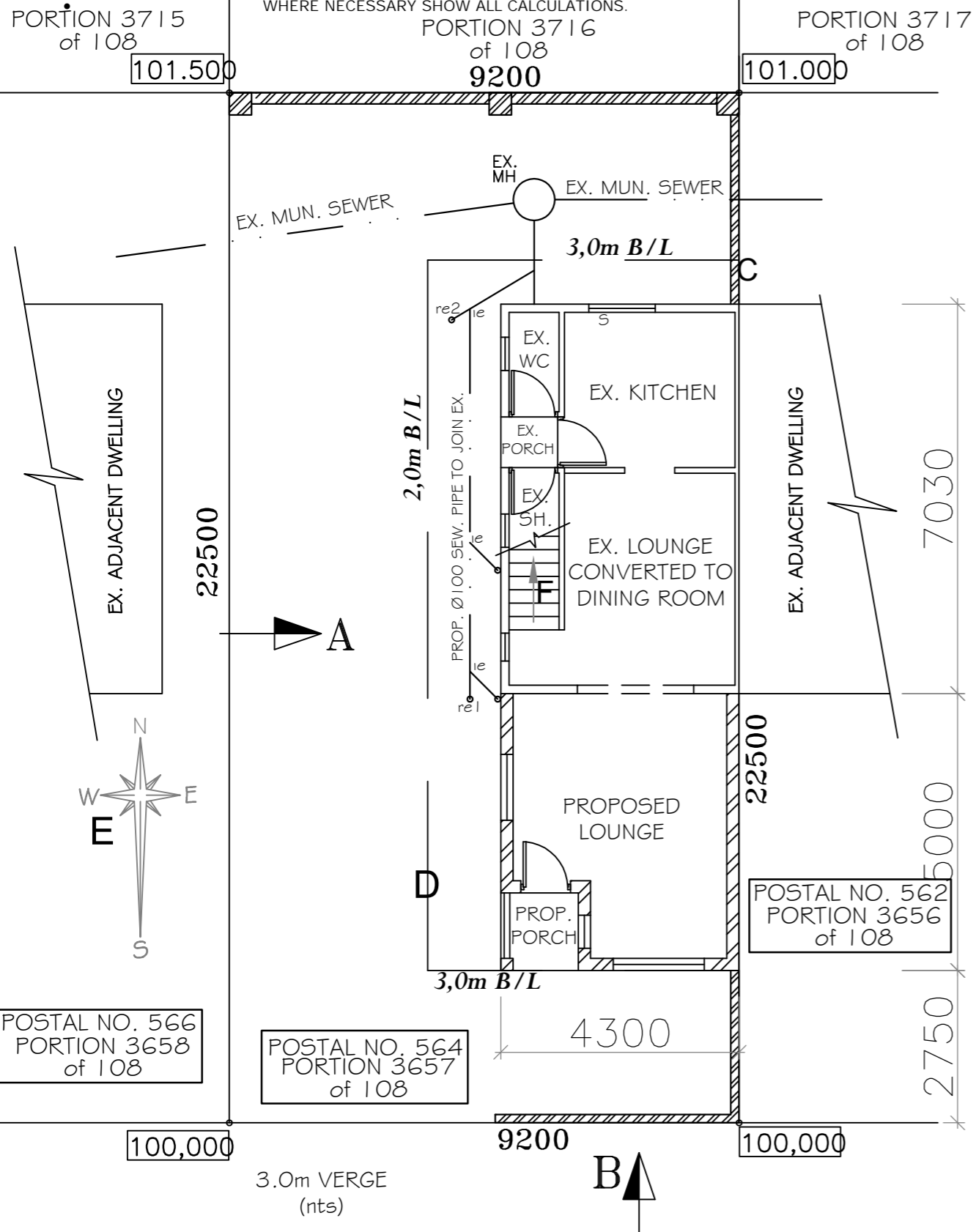
QUESTION	LEARNER'S MARK			MODERATED MARK		
ONE			25			
TWO			37			
THREE			88			
TOTAL						
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FINAL CONVERTED MARK	CHECKED BY
100	

NAAM _____
NAME _____

QUESTION ONE

THE DIAGRAM BELOW SHOWS A TYPICAL TOWNHOUSE WHERE 2 DWELLINGS SHARE A COMMON WALL.
 REFER TO THE GIVEN DIAGRAM AND ANSWER THE QUESTIONS IN THE SPACES PROVIDED.
 WHERE NECESSARY SHOW ALL CALCULATIONS.



GROUND FLOOR & SITE PLAN

SCALE 1:200

1. WHAT IS THE SCALE OF THE DRAWING?	1
2. WHAT IS THE STREET ADDRESS OF THE PROPOSED DEVELOPMENT?	1
3. WHAT IS THE ERF NUMBER OF THE PROPERTY ON THE NORTH SIDE?	1
4. IS THE PROPERTY ABOVE OR BELOW ROAD LEVEL?	1
5. WHAT IS THE HEIGHT DIFFERENCE OF THE PROPERTY?	1
6. WHAT ELEVATION CAN BE VIEWED FROM DIRECTION OF ARROW A?	1
7. WHAT ELEVATION CAN BE VIEWED FROM DIRECTION OF ARROW B?	1
8. HOW FAR IS THE PROPOSED EXTENSION FROM THE ROAD EDGE?	1
9. WHAT DO THE FOLLOWING ABBREVIATIONS STAND FOR?	
9.1. SH	1
9.2. WC	1
9.3. S	1
9.4. MH	1
9.5. RE	1
9.6. IE	1
10. WHAT FEATURES ARE REPRESENTED BY:	
10.1. C	1
10.2. D	1
10.3. E	1
10.4. F	1
11. WHAT IS THE AREA OF THE PROPOSED EXTENSION?(answer in metres)	3
12. WHAT IS THE PERIMETER OF THE PROPERTY?(answer in metres)	2
13. WHAT DO YOU CALL 2 DWELLINGS SHARING A COMMON WALL? (FREE-STANDING/SEMI-DETACHED/UNATTACHED)	1
14. WHAT IS THE NAME GIVEN TO THE COMMON WALL? (PARTY-WALL/RETAINING WALL/BOUNDARY WALL/CAVITY WALL)	1
TOTAL	
/ 25	

NAME: _____ GR. 12 _____

QUESTION THREE : CIVIL DRAWING 139 MARKS

GIVEN:

Three views of a outbuilding and garage and the information needed to draw a two-point perspective drawing.

PP - picture plane

HL - horizon line

GL - ground line

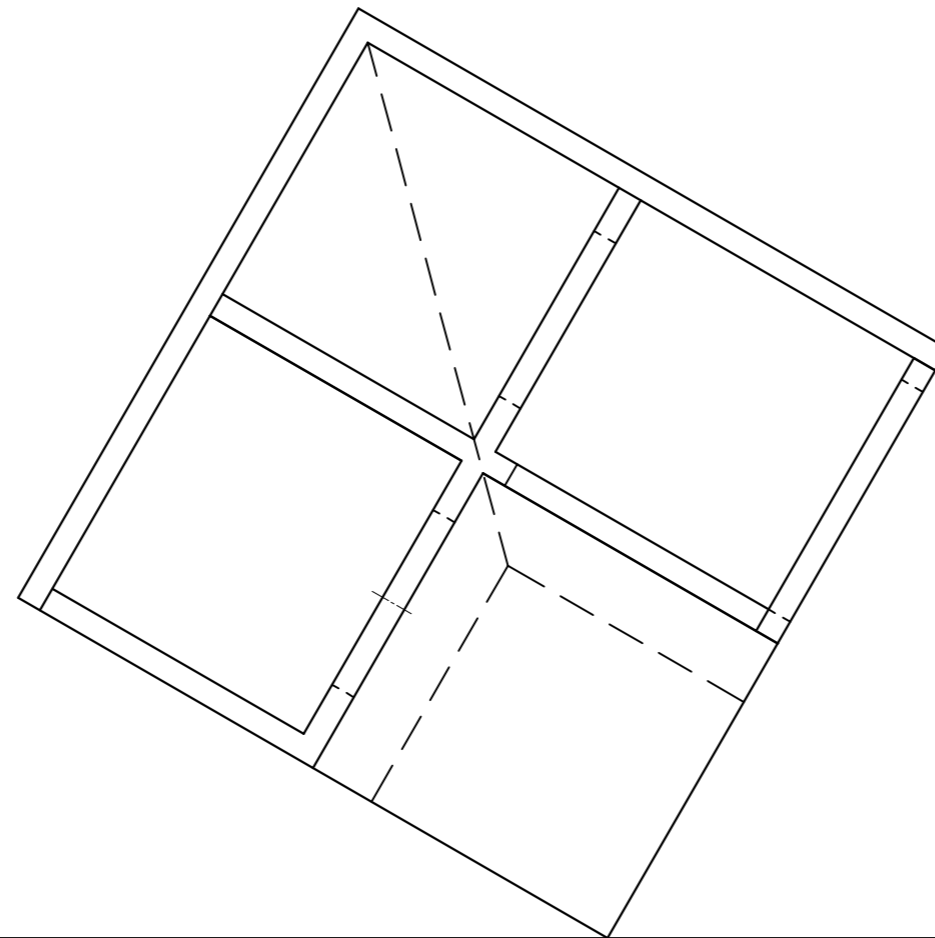
SP - station point

Instructions:

Complete the perspective drawing using the given information.

- Align the drawing sheet to the ground line.
- Determine and label the vanishing points.
- Show ALL necessary constructions.
- No hidden detail required.

42 MARKS

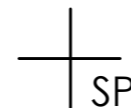
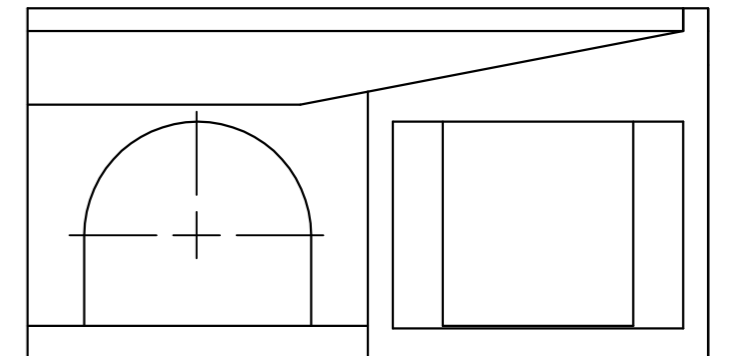
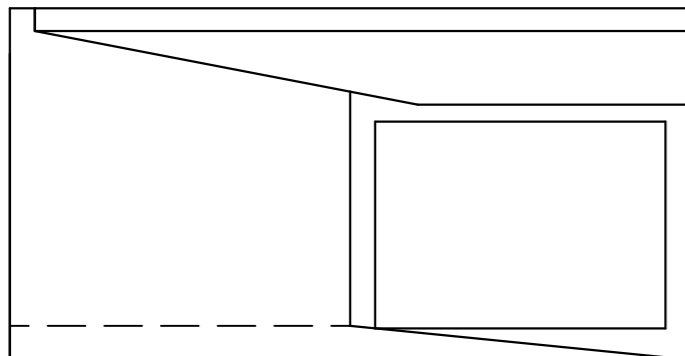


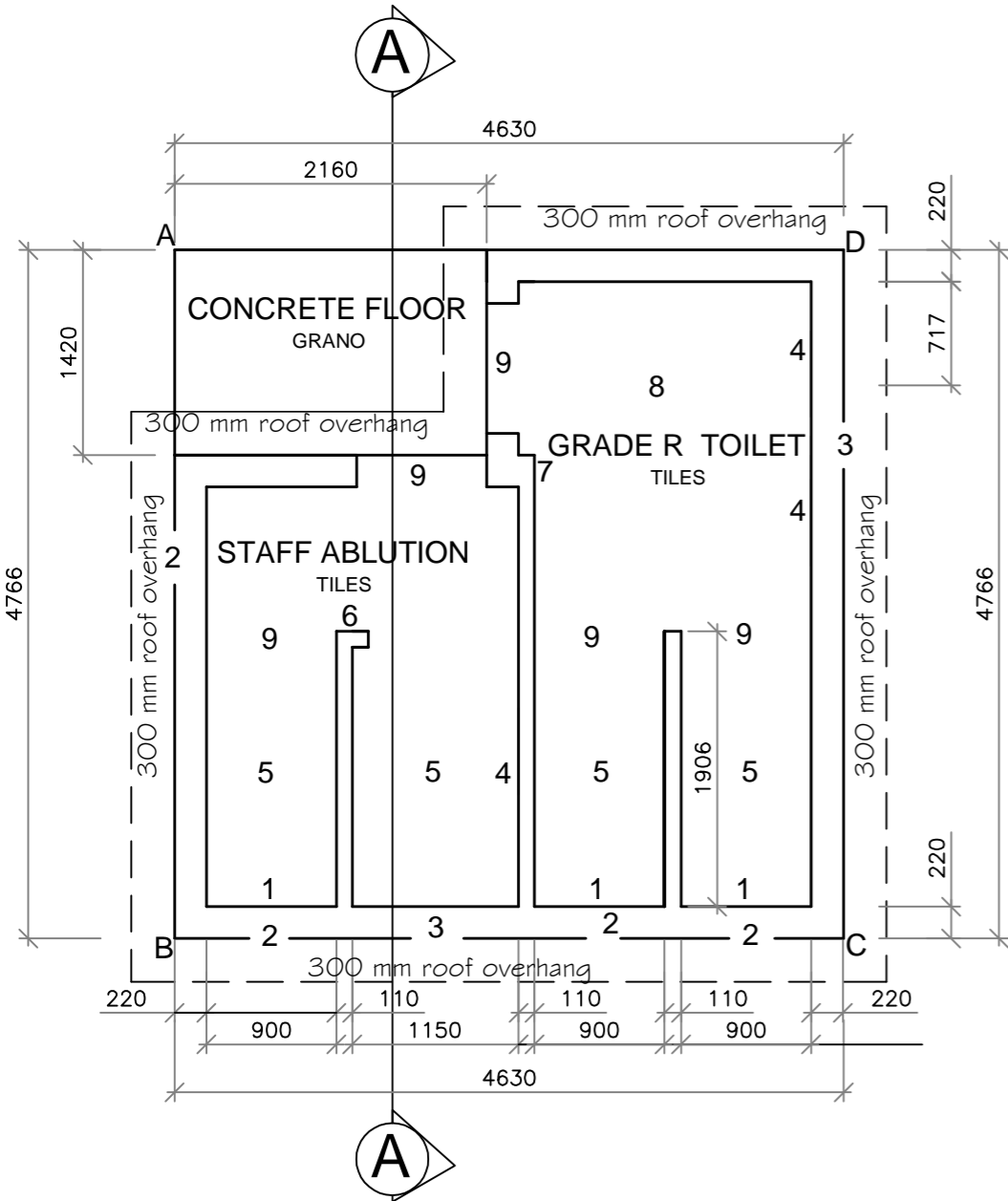
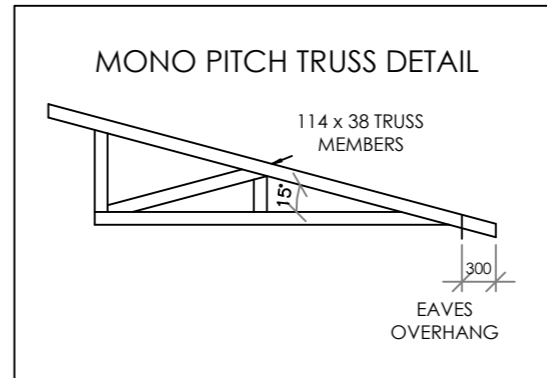
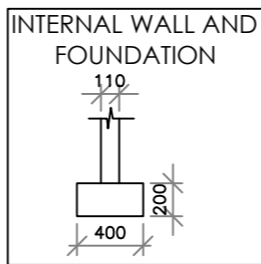
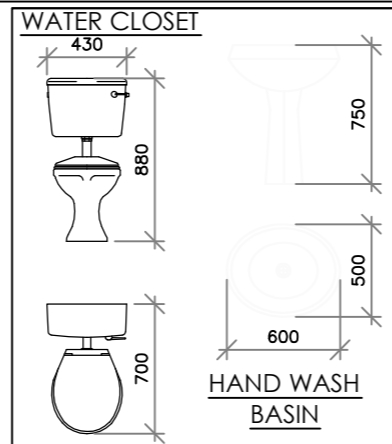
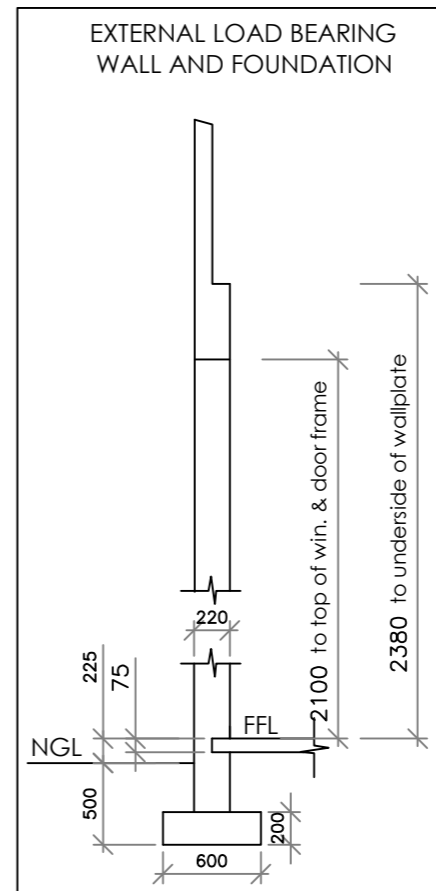
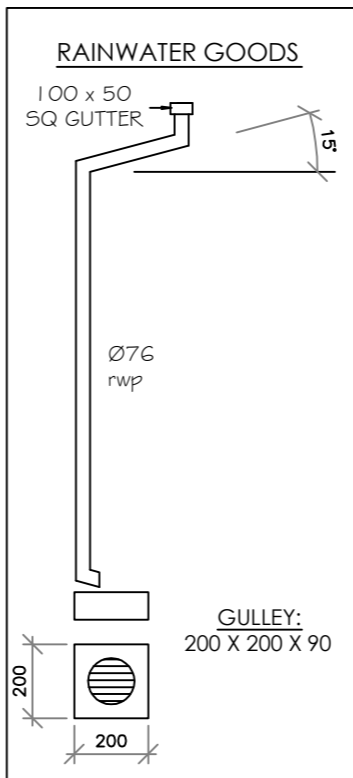
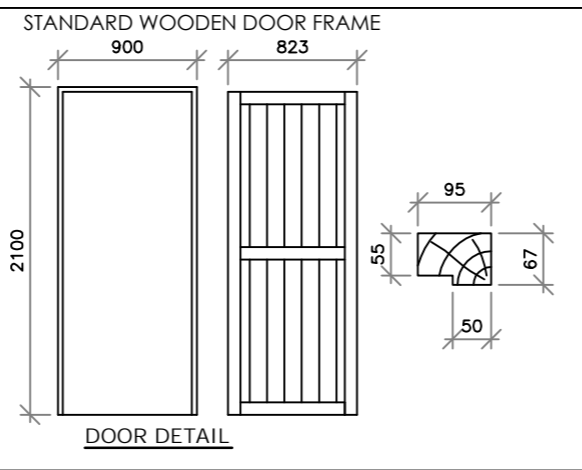
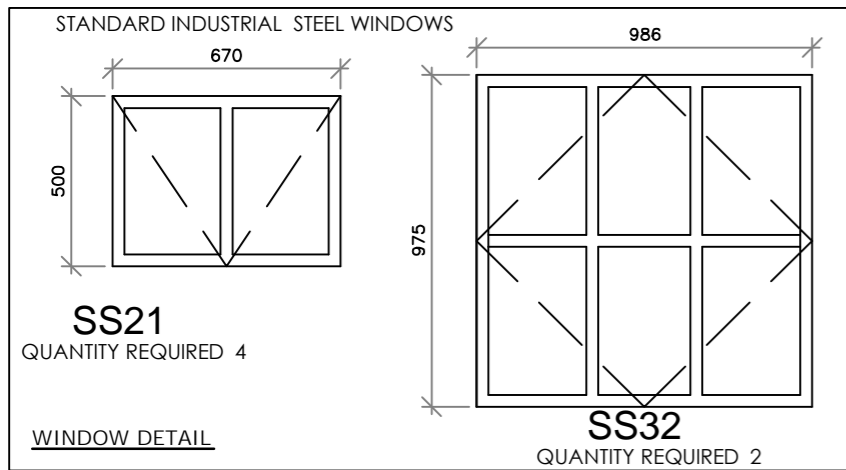
ASSESSMENT CRITERIA		
①	CONSTRUCTIONS + VP'S	7
②	ROOF	10
③	WALLS (50 ÷ 2)	25
TOTAL		42

PICTURE PLANE

HORIZON LINE

GROUND LINE





- KEY TO NUMBERED FEATURES ON PLAN**
1. Water Closet
 2. Window SS21
 3. Window SS32
 4. Hand Wash Basin
 5. Ceiling Mounted Light
 6. Two pole light switch.
 7. Three pole light switch
 8. 2 x 15W Fluorescent Light
 9. Door with frame

SPECIFICATIONS:

WALLS:
LOAD BEARING: 220mm
NON-LOAD BEARING 110mm

FLOOR:
CONCRETE SLAB 75mm

ROOF COVER:
IBR GALVANISED ROOF SHEETING 1200 X 740
(to be drawn as double lines 36mm apart)
laid on 38 x76 purlins fixed to roof truss

ROOF TRUSS:
MONO PITCH SA ROOF TRUSS
38 x 114 gang nailed timber trusses @ 15° pitch @ maximum 1100 c/c.

NOTE:
Walls above all openings to be supported by re-inforced concrete lintels.

QUESTION THREE : CIVIL DRAWING 139 MARKS

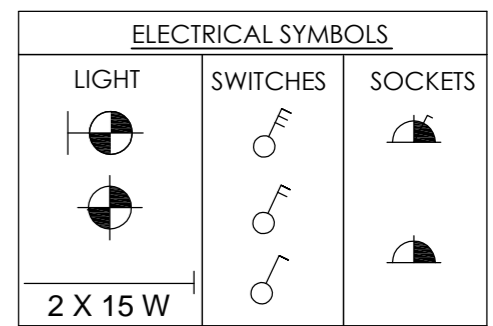
- Given:**
- The incomplete GROUND FLOOR PLAN of a GRADE R TOILET AND STAFF ABLUTION BLOCK IN A PRIMARY SCHOOL is given on the answer sheet.
 - The ROOFLINES as indicated on the floor plan.
 - The door and door-frame detail.
 - Details of steel windows.
 - Sanitaryware.
 - Rainwater gutter, downpipe and gulley.
 - Schematic roof truss detail.
 - Foundation detail.
 - A table of electrical symbols.
- Instructions**
- Answer this question on ANSWER SHEET
 - Draw, to **scale 1 : 50** and the given specifications:
 - The complete floor plan.
 - The complete section on A - A.
 - A south elevation.
 - All drawings must comply with the guidelines contained in **SANS 10143**

- SPECIFICATIONS THE FLOOR PLAN**
- Show the following features on the drawing:**
- All walls with hatching detail.
 - The doors and windows.
 - The conventions of ALL bathroom fixtures as indicated with numbers on the incomplete floor plan on question.
 - All electrical features as indicated with numbers and letters on the incomplete floor plan on the question.
 - The roof line with a 300mm overhang.
 - The cutting plane A - A.
 - The rain water down pipe and the gulley.

- SOUTH ELEVATION**
- Show the following features on the drawing:**
- All walls
 - The roof, fascia boards and barge boards.
 - Rainwater goods - gutter downpipes and gulley.
 - Finished floor level, natural ground level.
 - Windows

- SECTIONAL ELEVATION ON A - A**
- Show the following features on the drawing:**
- The sectional details from foundation to roof with hatching detail.
 - All window and door details.
 - The finished floor level.
 - The gutter, rainwater downpipes and gulleys.

- Label the following:**
- The floor plan including the scale.
 - Room designations and the floor finish.
 - Sectional elevation on A - A.
 - The finished floor level.
 - DPC, Water Closet, Wash Hand Basin



ANSWER SHEET

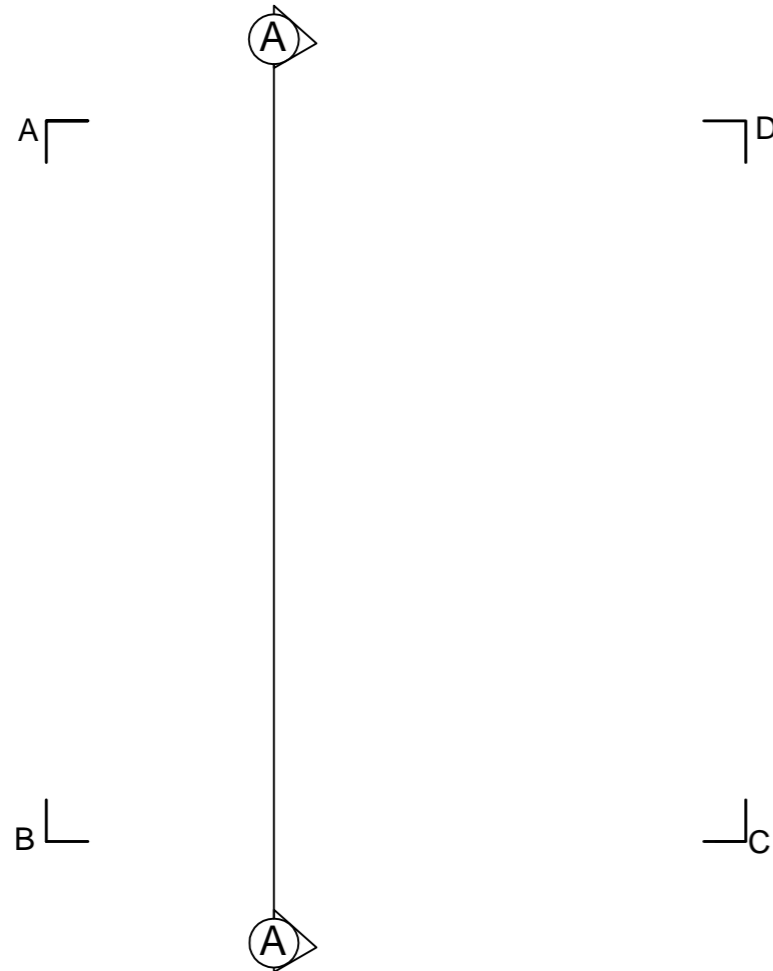
QUESTION THREE : CIVIL DRAWING

ASSESSMENT CRITERIA

FLOOR PLAN		
①	WALLS & HATCHING	28½
②	WINDOWS & DOORS	28½
③	SANITARY FITMENTS	12½
④	ELECTRICAL	10½
⑤	LABELS	6½
SUB-TOTAL		42
SECTION ON A - A		
⑩	ROOF	14½
⑪	SUB-STRUCTURE	14½
⑫	SUPER-STRUCTURE	14½
⑬	DOORS, WINDOWS	12½
⑭	FACIA, GUTTERS, GULLEY	6½
⑮	HATCHING	16½
SUB-TOTAL		38
SOUTH ELEVATION		
⑥	ROOF, GUTTER, GULLEY	10½
⑦	WINDOWS	14½
⑧	WALLS, FFL	3
⑨	LABELS	2
SUB-TOTAL		17
TOTAL		139

_____ NGL

_____ NGL



SECTION ON A - A
SCALE 1:50