

**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DIPLOMA IN ENVIRONMENTAL HEALTH  
SCIENCE**  
**MAIN EXAMINATION PAPER MAY 2012**

**TITLE OF PAPER :** BUILDING CONSTRUCTION  
TECHNOLOGY II

**COURSE CODE :** EHS 211

**DURATION :** 2 HOURS

**MARKS :** 100

**INSTRUCTIONS :** ANSWER ANY FOUR QUESTIONS

: EACH QUESTION CARRIES 25 MARKS

: NO PAPER SHOULD BE BROUGHT INTO  
NOR OUT OF THE EXAMINATION  
ROOM

: BEGIN EACH QUESTION ON A  
SEPARATE SHEET OF PAPER

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS  
GRANTED BY THE INVIGILATOR**

**QUESTION ONE**

A) Outline the

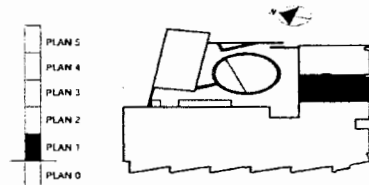
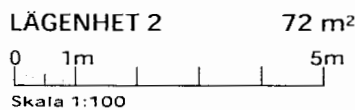
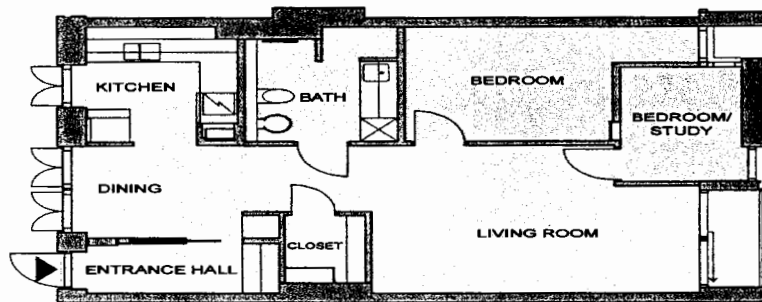
- 1. Erase command sequence in AutoCAD [1]
- 2. Offset command sequence in AutoCAD [1]
- 3. Trim command sequence in AutoCAD [1]

B) What is the importance of a Gantt Chart in a building project [2]

C) In normal drawing plans like the one given below. What principal dimensions must be shown on plan? [5]

**BO01 / TEGELBORGEN - LAGENHET 2**

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D) Using a sketch and imaginary dimensions illustrate the following concerning sizes of foundations:  $W=TW+2T$  [3]

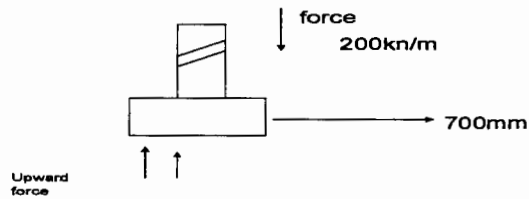
E) Using sketches show three ways of dimensioning angles and circles respectively [6]

F) Concerning types of dimensioning lines use sketches to show a) Running dimensions, b) Open arrowhead and c) closed arrowhead [6]

## QUESTION TWO

A) Given the following figure representing a house exerting a force of  $200\text{kn/m}^2$  calculate for the required soil bearing capacity of the soil

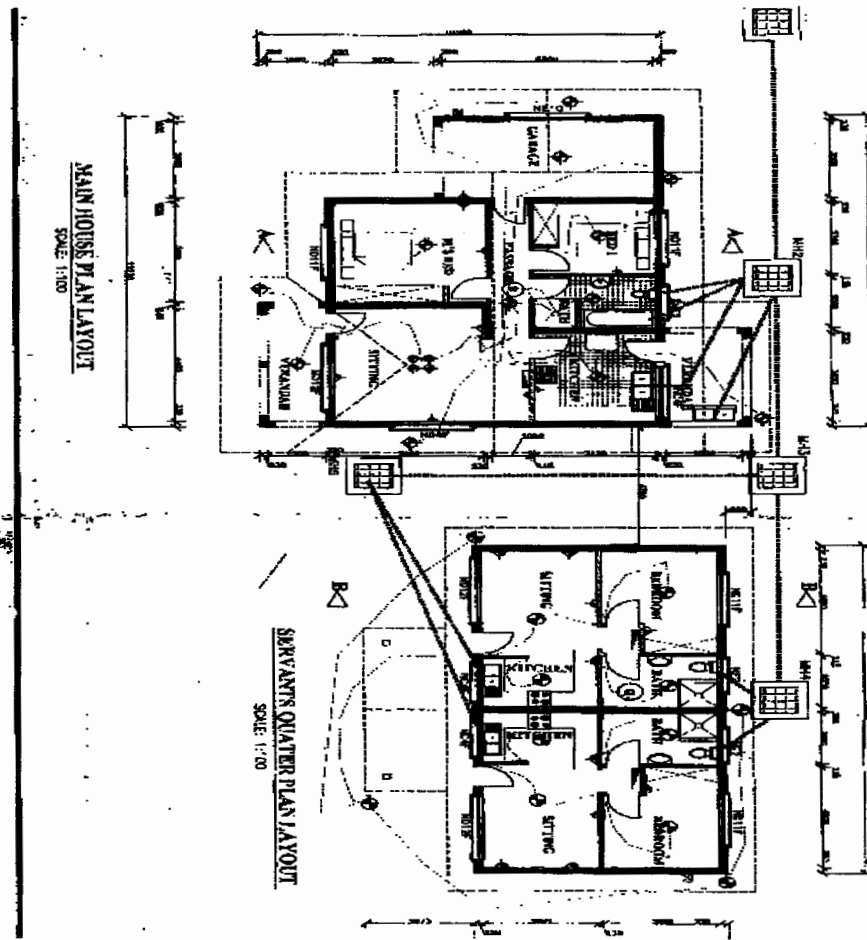
[6]



B) Concerning height of rooms the minimum height of from finished ceiling is 2400mm.

Describe the procedure followed in sketching this height using AutoCAD. [5]

C) Given the plan below discuss the architectural considerations that have been taken to come up with the plan [10]



### QUESTION THREE

- A) List five things to consider in a site plan [5]
- B) With examples differentiate between dead, imposed and wind loads [3]
- C) Give examples of the theoretical, design, mensuration and planning aspects of building construction [10]
- D) Differentiate between the building application requirements and procedures of government and municipalities in Swaziland [7]

### QUESTION FOUR

- (a) Write a few notes on the use of scale in working drawings giving examples of appropriate scales for the component parts of working drawings [5]
- (b) Outline the health and safety standards applicable in a building site [5]
- (c) Outline the things you look for in interpreting, approving, and scrutinizing drawings and building plans [10]

(d) 2mm is the size of a road drive leading to a building site. On a scale 1:1000, what is the size of the road in meters? [1]

(e) What is the volume of a mineral which presents with a density of  $7.5 \text{ g/m}^3$  and a mass of 375? [1]

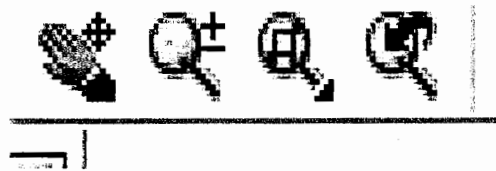
(f) Calculate the width of a strip foundation when the load bearing wall is transmitting a load of  $25 \text{ kn/m}$  and the self bearing capacity of the subsoil is  $75 \text{ kn/m}^2$  [2]

(g) Given that **Specific gravity** =  $\frac{\text{Weight in air}}{\text{Weight in air}-\text{Weight in water}}$ .

Now for a mineral whose specific gravity is 1.07, and its weight on air is 240, what is the mineral weight in water?[1]

### QUESTION FIVE

a) (a) Name the following CAD functions and utility thereof



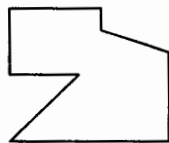
a                      b                      c                      d                      [4]

(b) Which five CAD commands require that you have the object first before executing it? [5]

(c) Given the following figure outline the procedure to follow in order to check the dimensions of the three angles using CAD [5]



(d) Given the following figure in AutoCAD how would you increase its size by 2 and How would you reduce its size by half [5]



(f) AutoCAD uses various cursor modes in trying to execute certain functions. Draw sketches of four of these and indicate the use and meaning thereof. [5]