

UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE

RESIT EXAMINATION PAPER JULY 2018

TITLE OF PAPER : BUILDING CONSTRUCTION
TECHNOLOGY II

COURSE CODE : EHM 305

DURATION : 2 HOURS

MARKS : 100

INSTRUCTIONS : ANSWER ANY FOUR QUESTIONS

: EACH QUESTION CARRIES 25 MARKS

: 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) Name the following CAD commands and state their function.



a b c d [4]

b) Given the following CAD functions state the utility thereof

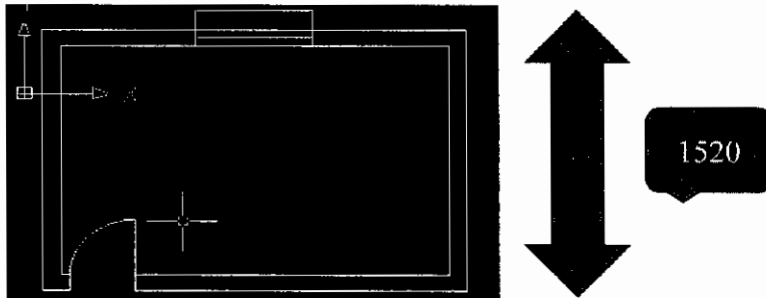


[7]

c) Design a Gantt chart in a logical sequence using your knowledge of at list seven expenditure items in a construction project. [14]

QUESTION TWO

A) A bathroom must have a minimum area of 3.700m² with the least dimension of 1520mm. Give the dimension of the other side in m² [5]



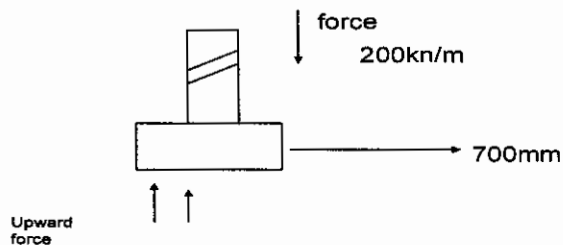
B) AutoCAD uses various cursor modes in trying to execute certain functions. Draw sketches of four of these and indicate the use and meaning thereof. [5]

C) Draw a sketch to illustrate the point “walls in footings are to be centred on the strip foundation” [10]

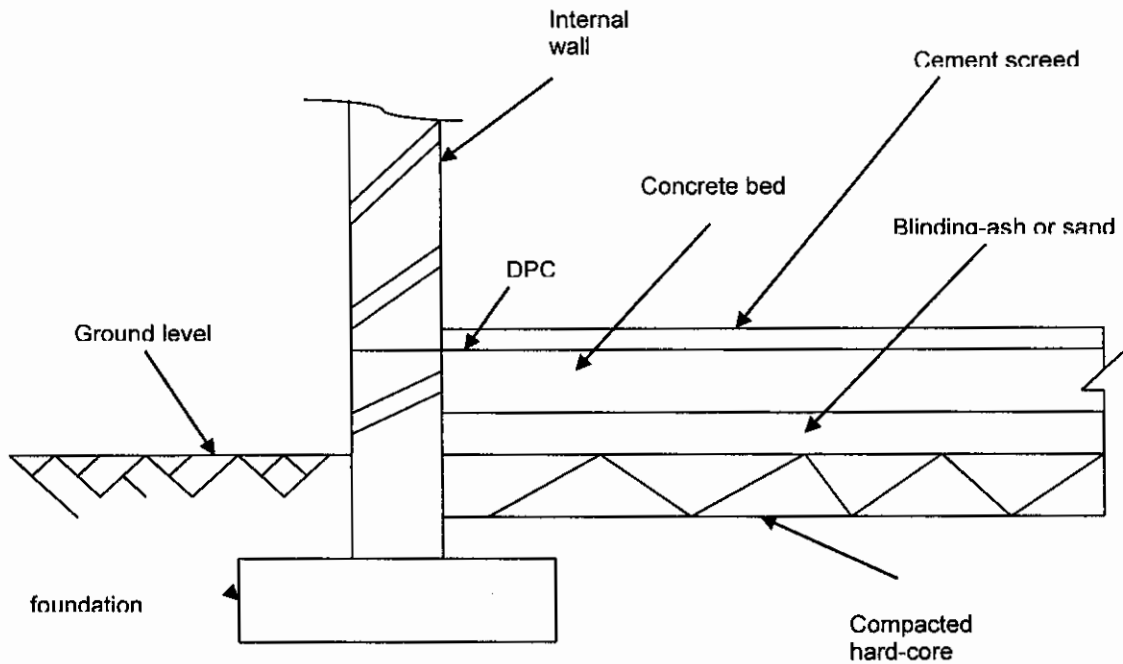
D) What is the value of Base point and Osnap in CAD? [5]

QUESTION THREE

- a) Given the following scale combinations. State for which construction drawings they are suitable; [3]
- i. 1:50 , 1:100
 - ii. 1:200, 1:500, 1:2500
 - iii. 1:5, 1:10, 1:20
- b) Calculate the scale factors you can use to design objects in AutoCAD for the following ranges [5]
- i. 1:5
 - ii. 1:20
 - iii. 1:50
 - iv. 1:500
 - v. 1:2000
- c) Given plans for scrutiny what exactly do you look for? [10]
- d) Given the following figure representing a house exerting a force of 200kn/m^2 calculate for the required soil bearing capacity of the soil [2]

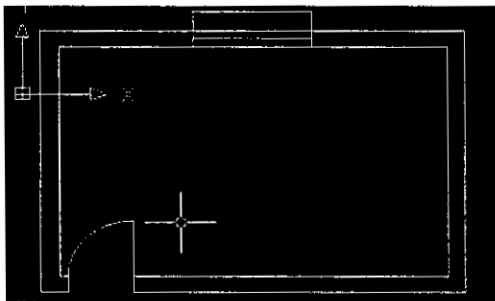


- d) 10mm is the size of a roads driveway leading to a building site. On a scale 1:1000 what is the size of the road? [2]
- e) Using your knowledge on how to design foundations. Calculate the width of the foundation trenches for outside walls below using dimensions as stipulated for minimum building requirements concerning sizes of foundations particularly when the concrete bed thickness is 230mm. You may wish to use the formula $W=TW+2T$ [3]



QUESTION FOUR

(a) Given the following profile of a one room house plan, lean-to roof, Outline the CAD sequence followed to come up with the elevations, sections and roof thereof. Dimension 2000*1000, door 850, window 1500, roof pitch 10 ° [10]



b) Name these two CAD symbols and explain differences thereof [2]



c) Name these two CAD symbols and explain the difference thereof [2]



d) Name these two CAD symbols and explain the utility thereof [2]



e) Give five options given by File at the menu bar in CAD [5]

f) What is meant by *inscribed* and *circumscribed* respectively when drawing polygons in CAD? [4]

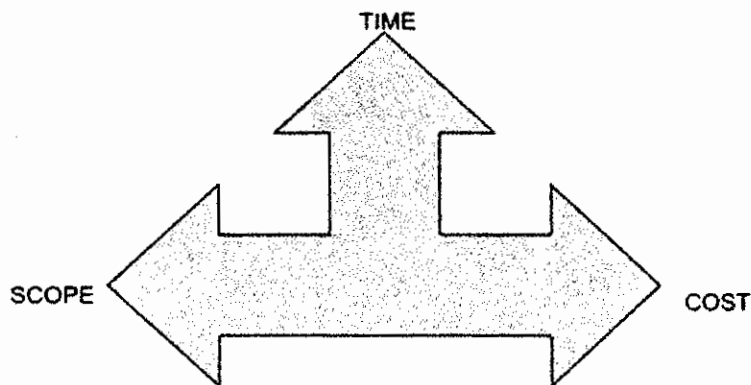
QUESTION FIVE

a) With the aid of rough sketches illustrate the following types of dimensioning;

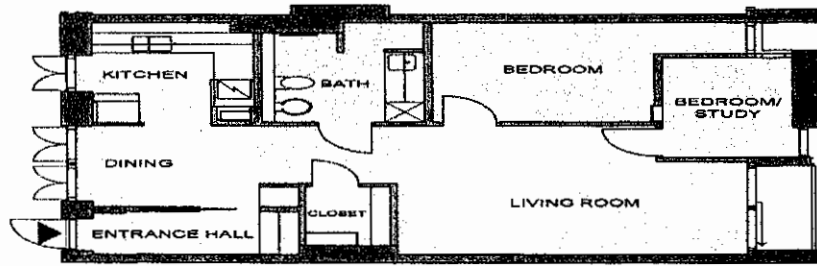
- i. Running [1]
- ii. Open arrowhead [1]
- iii. Closed arrowhead [1]
- iv. Dimensioning circles and arch's [1]

b) Below is a graphic representing the three project management constraints? Discuss in detail how understanding these is required for a successful construction project. [10]

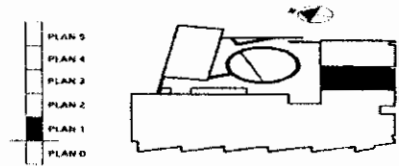
**Project Management Triangle
Triple Constraints**



- c) Which five CAD commands require that you have the object first before executing it? [5]
- d) In normal drawing plans like the one given below, what principal dimensions must be shown on the plan? [5]



LÄGENHET 2 72 m²
0 1m 5m
Skala 1:100



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a) Concerning AutoCAD

i. Outline fully the AutoCAD opening sequence.

[1]