

**UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE
RE-SIT EXAMINATION PAPER JANUARY 2020**

TITLE OF PAPER : BUILDING CONSTRUCTION
TECHNOLOGY II

COURSE CODE : EHS 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) Summarize the use of the following when executing the CAD program.



a b c d [4]

b) Design a Gantt chart in a logical sequence using your knowledge of at list six expenditure items in a construction project. [12]

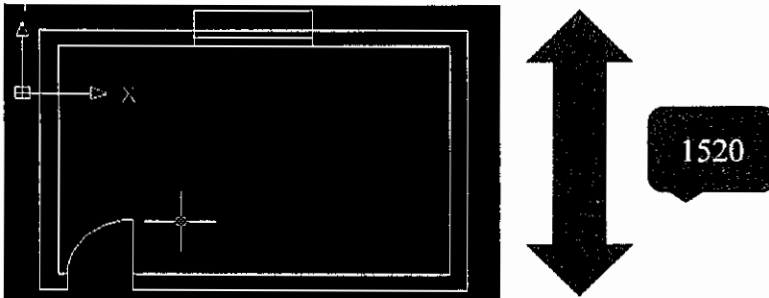
c) In your answer for b) above, indicate which aspects of the Ganth chart represents the following work break down structure.

- i. Finish to Start [2]
- ii. Finish to Finish [2]
- iii. Start to Start [2]
- iv. Start to Finish [2]

d) What is the standard rule for drawing sketches [1]

QUESTION TWO

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

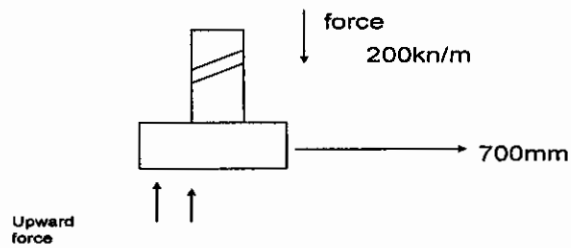


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- b) AutoCAD uses various cursor modes in trying to execute certain functions. Draw sketches of four of these and indicate the use and meaning thereof. [5]
- c) Contrast the architect's drawings from Engineer's drawings in terms of elements and their significance in construction technology [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) When given drawings for scrutinization state clearly what you will look for as an EHO when considering the following aspects of the drawings [10]
- i. Siting of façade and main windows
 - ii. Lighting
 - iii. Health and Safety
 - iv. Ablutions and Sanitary
 - v. Culinary
- d) Given the following figure representing a house exerting a force of 200kn/m^2 calculate for the required bearing capacity of the soil [2]

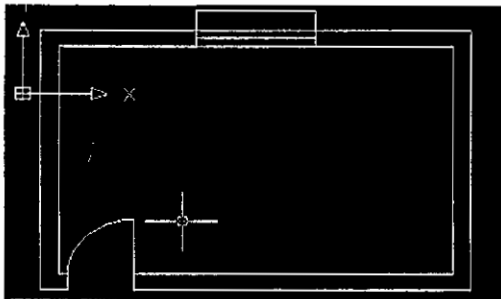


- e) 10mm is the size of a roads driveway leading to a building site. On a scale 1:1000 what is the size of the road? [2]
- f) Using your knowledge on how to design foundations. Calculate the width of the foundation trenches for outside walls below using dimensions as stipulated for minimum building 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. [10]

Dimension 2000*1000, door 850, window 1500, roof pitch 10 °



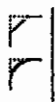
b) Name these two CAD symbols and explain differences thereof [2]



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]

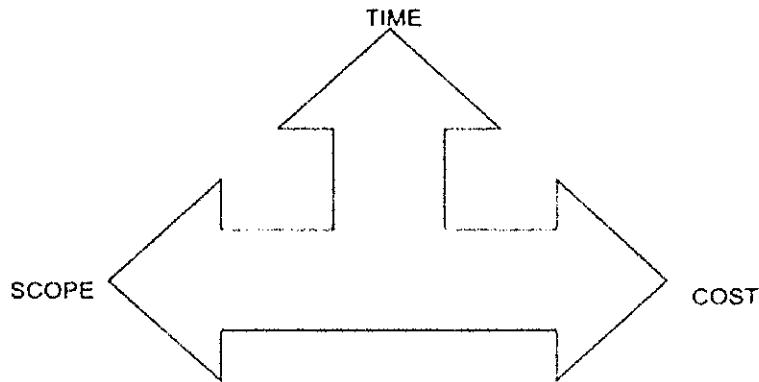
QUESTION FIVE

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) Define the term "bid shopping" [1]

d) The following refers to critical projects attributes for a successful project. Discuss each attribute fully indicating how it can contribute to a successful project and what are the dangers of compromising some of these? [10]

CRITICAL PROJECT ATTRIBUTES

