

**UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES**

DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE

MAIN EXAMINATION PAPER DEC 2015

- 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**
- : **NO PAPER SHOULD BE BROUGHT INTO
NOR OUT OF THE EXAMINATION ROOM**
- : **BEGIN EACH QUESTION ON A SEPARATE
SHEET OF PAPER**

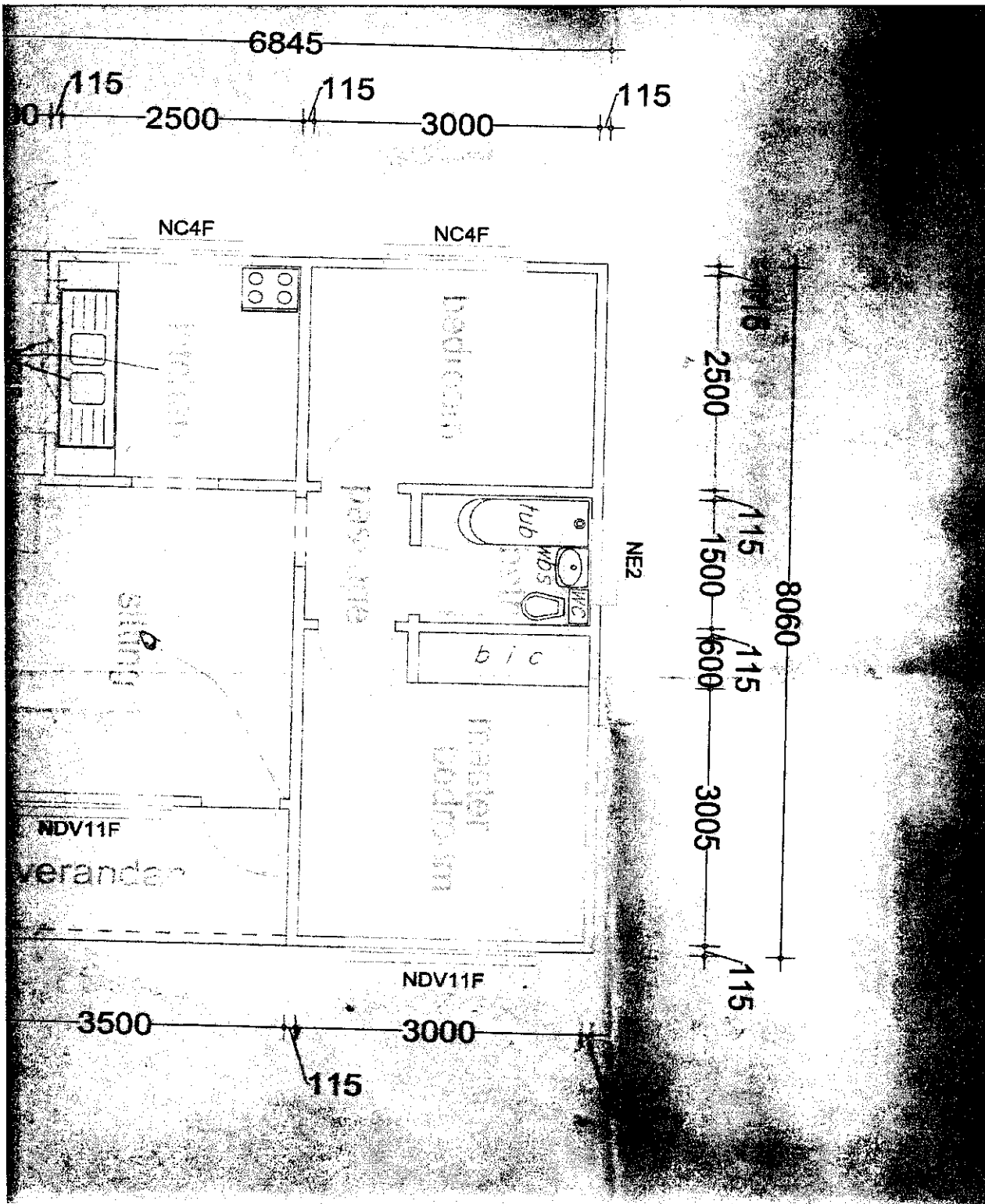
**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED
BY THE INVIGILATOR**

QUESTION ONE

- a) All development are subject to building regulation approval. Summarize the planning aspects of building construction as it pertains to the Swaziland Government and Swaziland Municipalities [10]
- b) Name all the different types of architects drawings and suggest four qualities that must be fulfilled generally by the drawings. [11]
- c) Mention the two factors which are critical in determining the size of a foundation in a construction project? [4]

QUESTION TWO

- a) Mention at least, five different traditional drawing instrumentations and state their three disadvantages. [8]
- b) This question refers to the sketch floor plan indicated overleaf :
 - i. Summarize the use of the scale ruler [2]
 - ii. Give the scale used in this plan [1]
 - iii. State the area of the master bedroom and the bedroom sizes in square meters [2]
 - iv. Does the area of the combined bathroom and water closet comply with the minimum building requirements and standards? Justify your answer [2]
 - v. If this plan is presented to the environmental health officer to scrutinize it in order for a certain development project to take place, would it pass? Justify your answer. [10]



Sketch Floor plan C for question two , b).

QUESTION THREE

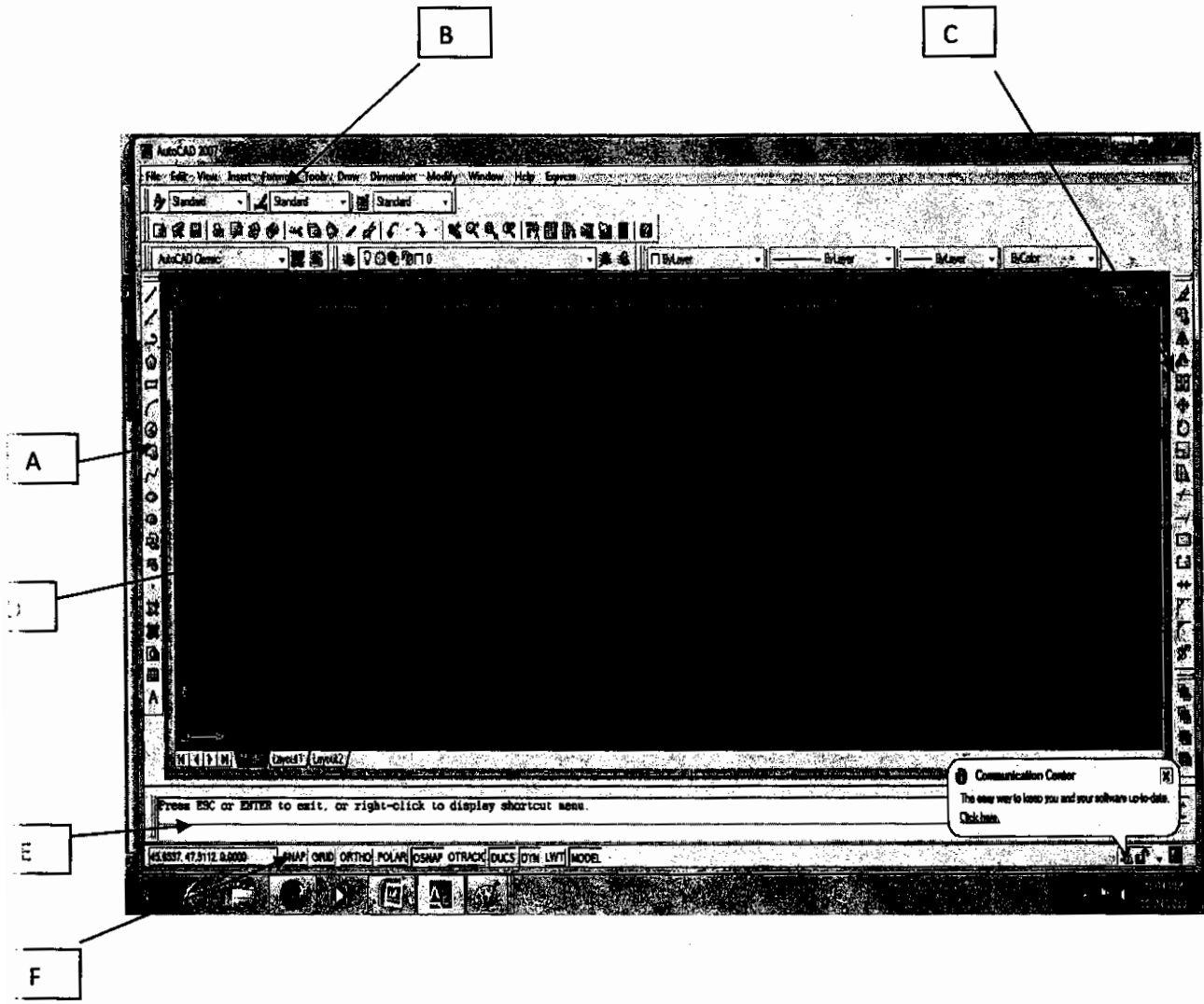
- a) Orientation to the performance of windows is very important. Using your knowledge on the North point define what is meant by orientation of a building. **[5]**
- b) Illustrate with the aid of a sketch the following types of symbols used in a drawing office and state at least two qualities for symbols. **[10]**

i. Drain and pipe lines	ii. Sink	iii. Reinforced concrete
iv. Soil	v. Single door single swing	vi. Water closet
vii. Bed	viii. Mass concrete	
ix. Bath	x. Folding doors side hung	

- c) Outline six standards pertaining drainage layout when scrutinizing building plans **[6]**
- d) Calculate the width of a strip foundation when the load bearing wall is transmitting a load of 50kn/m and the self bearing capacity of the subsoil is 85kn/m² **[4]**

QUESTION FOUR

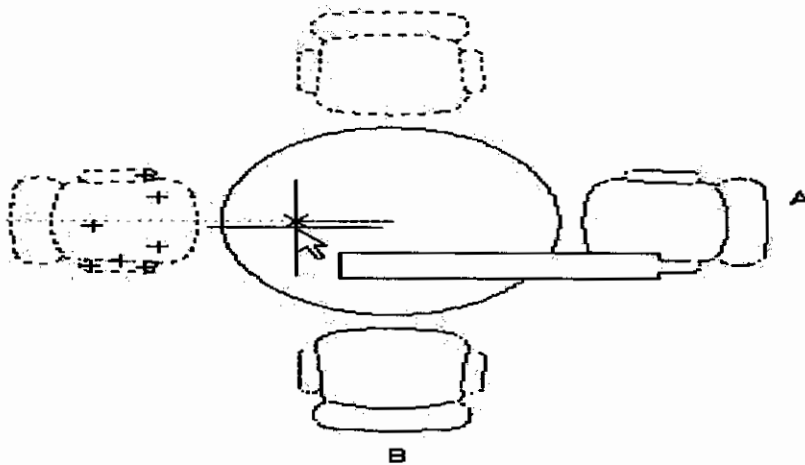
- a) Explain what is the importance of the project management triple constraints in a construction project. [6]
- b) Label the following screen components in AutoCad [6]



- c) Describe Class A to Class F Buildings in terms of Section 3 (1) of the Building and Housing Act, No 34, of 1968. [12]
- d) Differentiate between the copy and mirror command in AutoCAD [1]

QUESTION FIVE

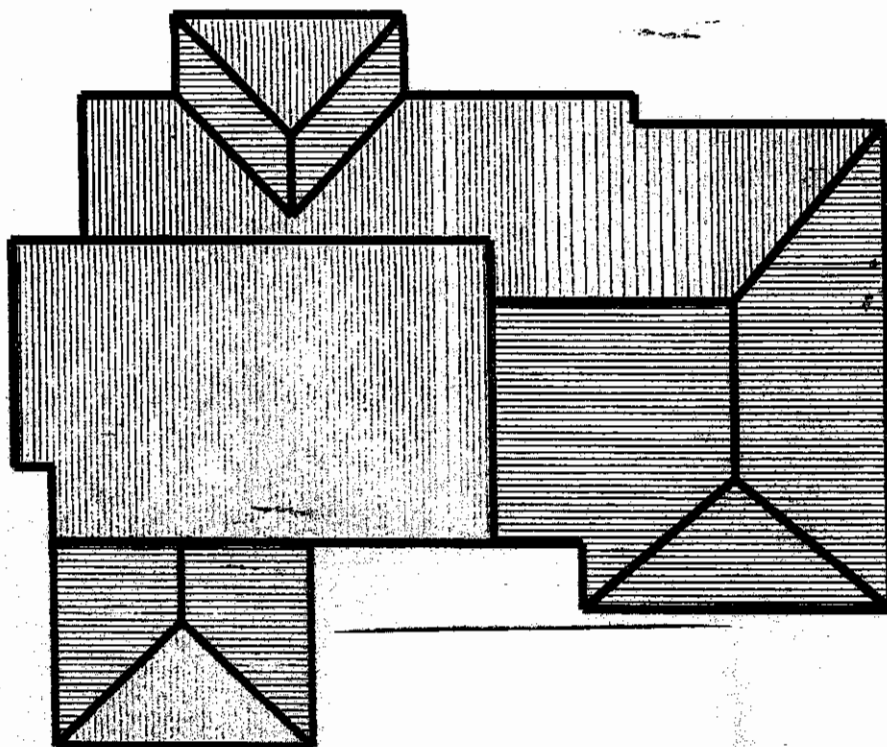
- a) Refer to the attached drawings Plan No 017 A and Plan No 017 B for this question (page 7&8). Scrutinize the two related drawings carefully and answer the following questions.
- Name Plan No 017 A [2]
 - Name Plan No 017 B [2]
 - Considering the whole house is it true that the house has only two bedrooms. Give reasons for your answer. [1]
 - Concerning Plan No 017 B suggest what could be the unnamed shaded part of the building. [1]
- 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. [4]
- c) Give appropriate CAD commands to get the chair below from point A to point B [1]



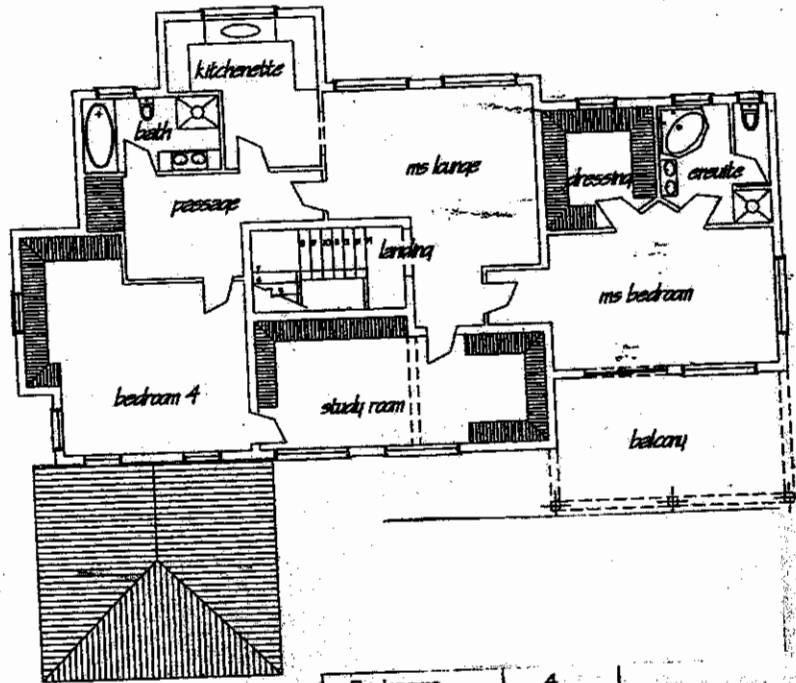
- d) Describe how you go about drawing a polygon with five sides inscribed and circumscribed when the radius is 20mm. [5]
- e) What is the difference between CAD command 'break' and 'break at point'? [2]
- f) Calculate the scale factor for the following scale ranges; 1:250, 1:50, 1:200 and 1:600 [4]
- g) Between the object to be trimmed and the cutting edges which do you select first when using the 'trim' command? [1]
- h) How many points are needed for the 'rectangle' command? [1]
- i) Specify the 'paper size' and 'plot offset' range we normally use in AutoCAD.[1]

Plan No. 017

A



Plan No. 017 **B**



Bedrooms	4
Bathrooms	3.5
Levels	2
Roof Finish	tiles
Wall Finish	Plaster/paint
Lounge	4.7x5.6
Main Bedroom	6.0x4.1
Bedroom2	3.5x3.3
Bedroom3	3.9x3.3
Bedroom4	5.2x4.4
Covered Patio	18.4m ²
Overall Dimensions	20.6x16.6