

UNIVERSITY OF SWAZILAND
Faculty of Health Sciences

**DIPLOMA IN ENVIRONMENTAL HEALTH
SCIENCES**
MAIN EXAMINATION PAPER MAY 2010

TITLE OF PAPER : BUILDING CONSTRUCTION
TECHNOLOGY II

COURSE CODE : EHS 211

DURATION : 3 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

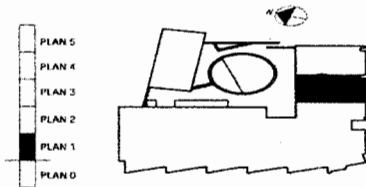
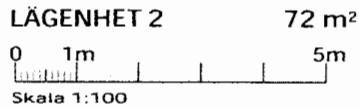
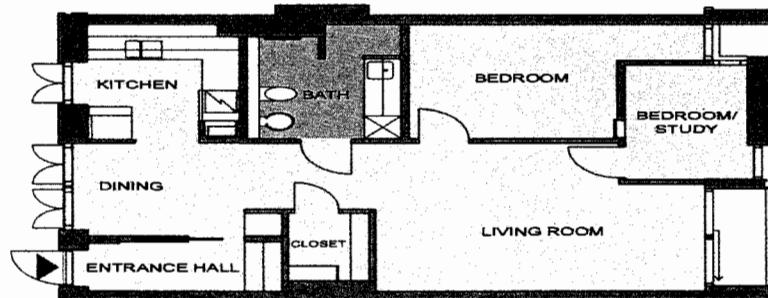
Choose one answer for each [2 points each]

1. The site plan is used to identify
 - a. Selective information which locates component elements and assemblies within a building which should be included on a floor plan
 - b. Detailed information in respect to the site as a whole
 - c. The amount of information contained on the drawing
 - d. The site in relation to the surrounding roads, buildings, geographical features etc
2. The majority of working drawings consists of plans, sections, and elevation, drawn by orthographic projections, whereby they are all in flat places. Which of the following statements best define the 'PLAN' in working drawings?
 - a. Angular perspective for external views of buildings and parallel perspectives which is normally used for interior.
 - b. A view from above of an object on a horizontal plane. Normally drawn of each floor at about 1m above floor level, looking down at the floor and cutting through walls, doors and windows.
 - c. Projection in which length, breath, and height of the object are shown on the one drawing
 - d. Representatives of external faces of a building including windows and doors.
3. When designing and selecting a foundation it is necessary to:
 - a. Know the water table
 - b. Calculate the loads on the foundation and determine the nature of subsoil and ground water level, changes and the possibility of the ground soil movement.
 - c. Calculate the number of walling unit plus the roof and its covering
 - d. Know the type of cement to be used and the amount of salt in the soil.
4. The basic objective of North point is
 - a. To collect systematically and record all necessary data which will be needed or help in the design and construction process of the proposed work.
 - b. To give reference points for setting out the proposed work
 - c. To obtain subsoil samples for identification, classification and ascertaining the subsoil characteristics
 - d. To assist in the correct orientation of views.
5. The main method used by the architect to communicate ideas and designs to the builder is
 - a. telephone messages
 - b. drawings, plans, & details
 - c. manufactures information sheets
 - d. video tapes
6. The wall thickness and foundation widths when setting out a building are marked on
 - a. the ground floor
 - b. the concrete slab
 - c. the profile board

- d. the four stout pegs
7. Suitable scale for floor plan is
- a. 1:100
 - b. 1:200
 - c. 1:20
 - d. 1:500
8. A spreadsheet would be the best software package to use in a computer for:
- a. Hours and wages calculations
 - b. Writing site meetings
 - c. producing scaled drawings on site
 - d. recording a safety inspection
9. It was estimated that 72000 bricks were required for a building project. If $2\frac{1}{2}\%$ more bricks were used the total number of bricks is:
- a. 72 000
 - b. 73 800
 - c. 74 000
 - d. 75 000
10. The Load of 320KN from a concrete column is supported by pad foundation on soil having a bearing capacity of 80kn/m^2 . The size of the base should be a minimum equivalent of:
- a. 1m x 1m
 - b. 2m x 2m
 - c. 3m x 3m
 - d. 4m x 4m
11. A building line is
- a. Line for making rondavel
 - b. Setback
 - c. Municipal line from which no development is allowed
 - d. String used to straighten the corners while building
12. The Ortho Command in AutoCAD
- a. Must always be on when drawing
 - b. Allows you to draw good circles
 - c. Allows you to draw straight vertical and horizontal lines
 - d. Cannot be used without OSNAP
13. Differentiate between dimensioning linear and angular in AutoCAD [1]

QUESTION TWO

- A) What do you mean by “competitive bidding” in building construction? [3]
- B) What is the importance of a Ganth 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]



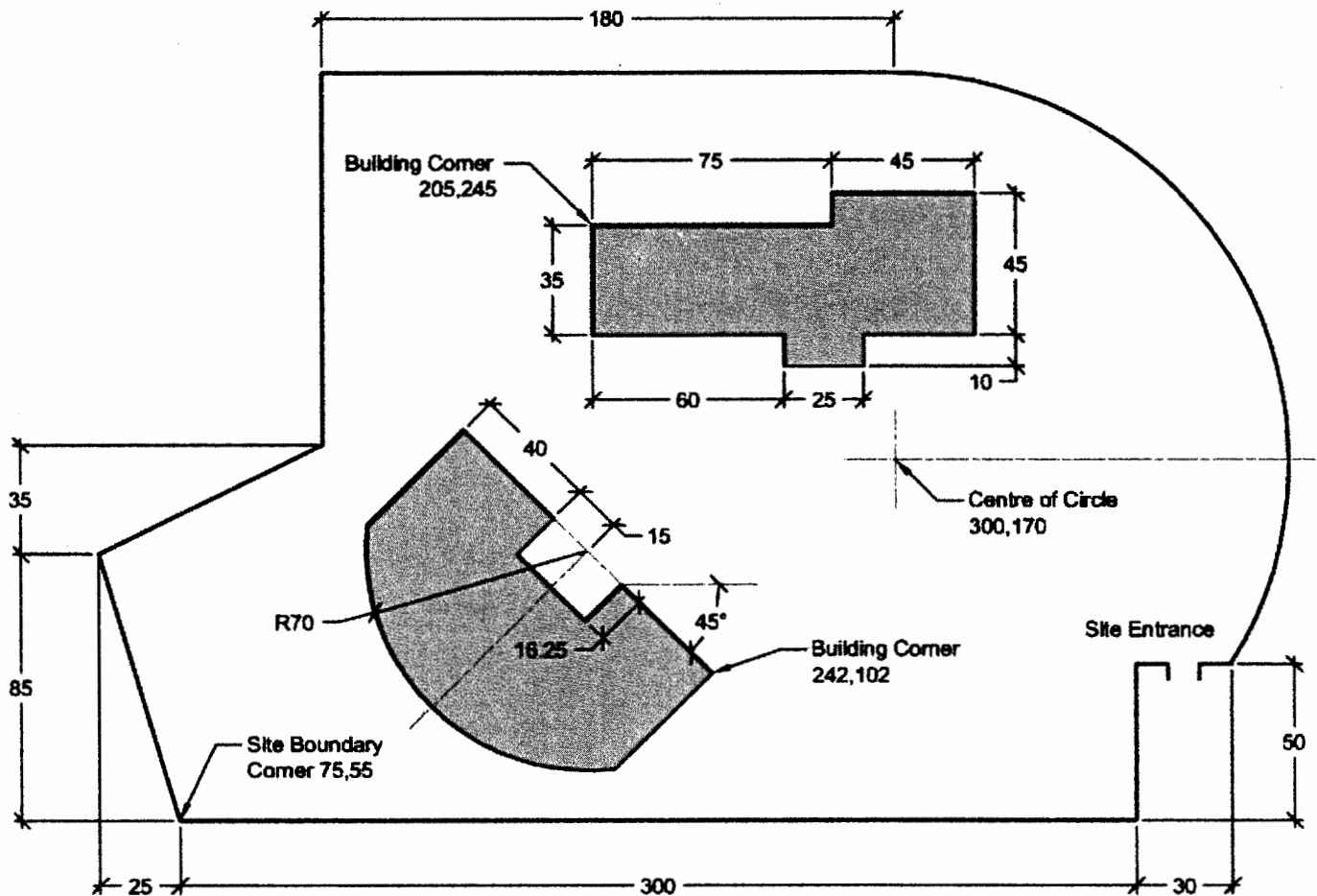
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- D) Differentiate dimensions in ordinary working drawings and those in detailed working drawings [2]
- E) Give the appropriate titles to indicate the differences between the following CAD commands [3]

LINES and CIRCLES	ERASE, COPY, MIRROR, OFFSET, MOVE, ROTATE, STRETCH
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- F) Given the following plan drawn using AutoCAD state which CAD commands you would utilise to come up with this drawing plan [10]



Not to scale
All dimensions are metres

QUESTION THREE

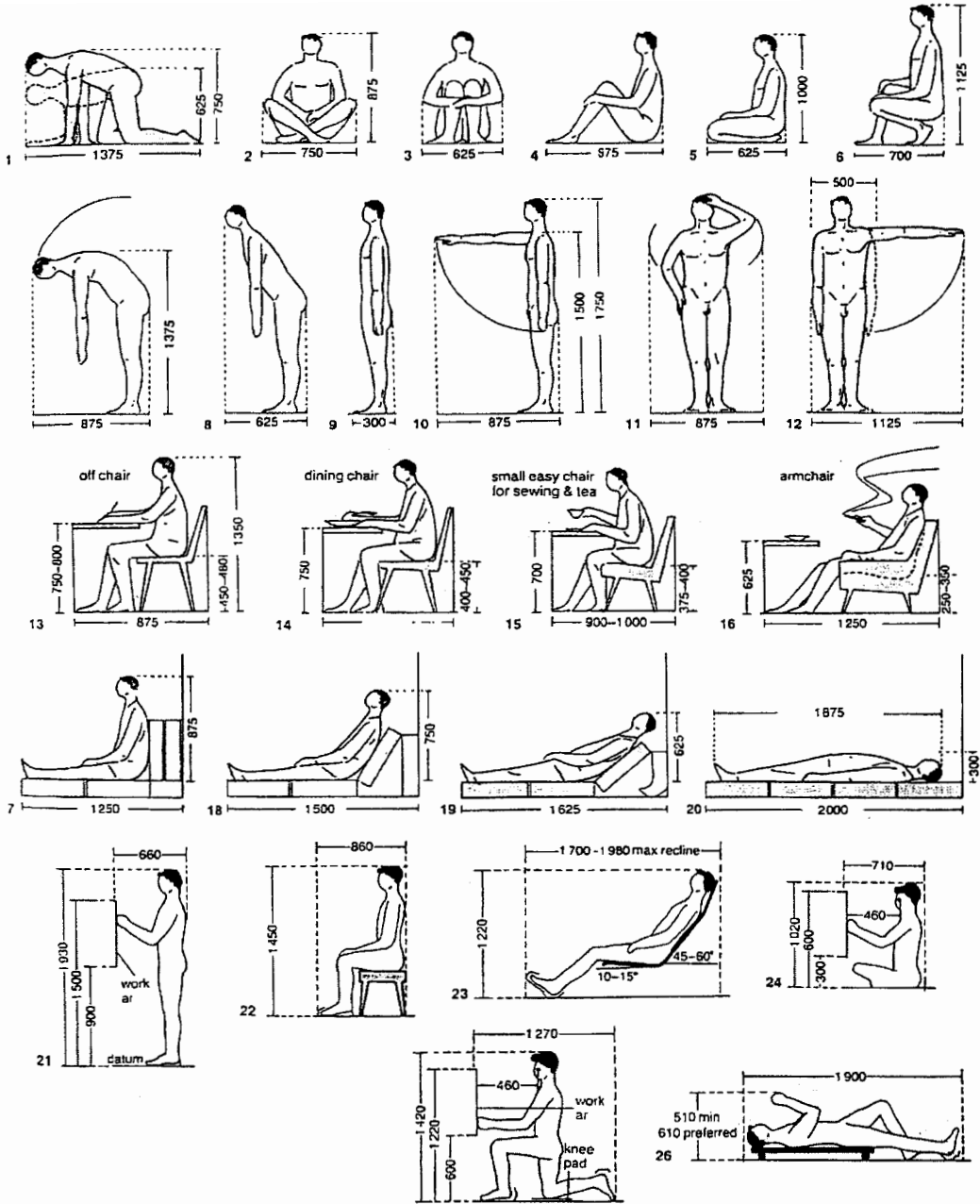
- (a) State three basic rules for a balanced presentation of finished drawings [6]
- (b) Illustrate with the aid of a sketch the following types of symbols used in a drawing office: [10]
1. Soil
 1. Mass concrete
 2. brickwork
 3. reinforced concrete
 4. bath
 5. hardcore
 6. water closet
 7. shower
 8. electric cooker
 9. soil vent pipe
- (c) This question refers to working drawing F. From the public health point of view what is glaringly wrong about this plan? [1]
- (d) What are the three subsets of the Building Construction Technology course? [3]
- (e) Outline the municipal planning application procedures & requirements in Swaziland [5]

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 [4]
- (b) Outline the health and safety standards applicable in a building site [4]
- (c) A bathroom must have a minimum area of 3.7m^2 with the least dimension of 1520. Give the dimension of the other side? [5]
- (d) Concerning height of rooms the minimum height of from finished ceiling is 2400. Describe how you would go about sketching this height using AutoCAD. [5]
- (e) Draw a sketch to illustrate the point “walls in footings are to be centred on the strip foundation” [5]
- (f) Using a sketch and imaginary dimensions illustrate the following concerning sizes of foundations: $W=TW+2T$ [5]

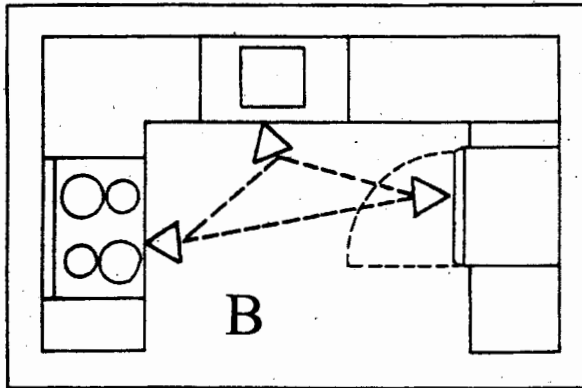
QUESTION FIVE

- A) Write notes based on the following figure and state the significance thereof in building design [10]

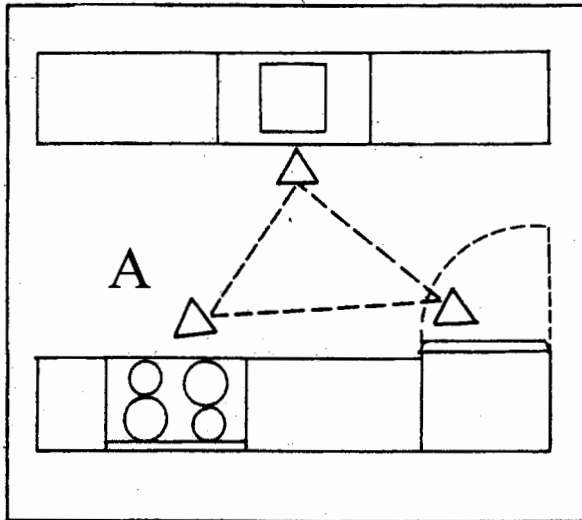


B) Define and state the components and significance of a “work triangle in a kitchen” [5]

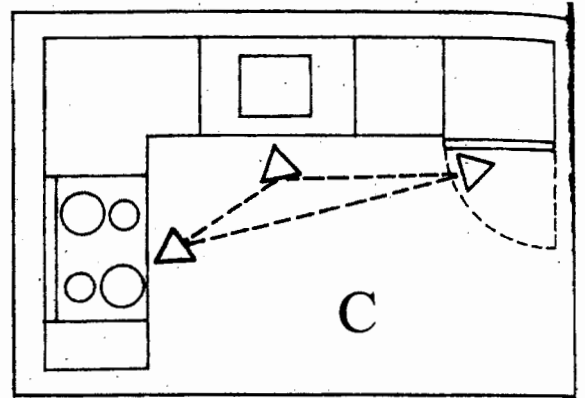
C) Given the following figures does it represent a good “work triangle”? [3]



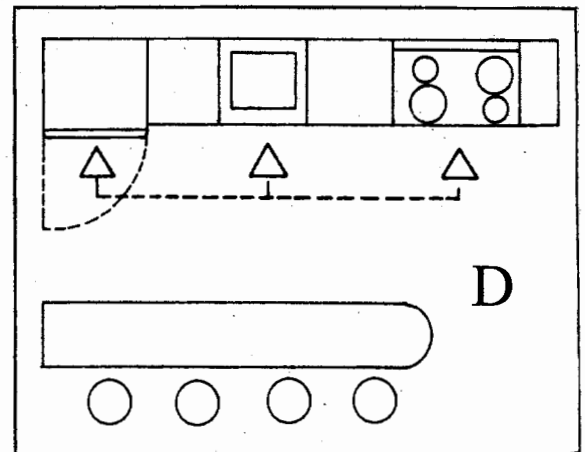
3 U shape k



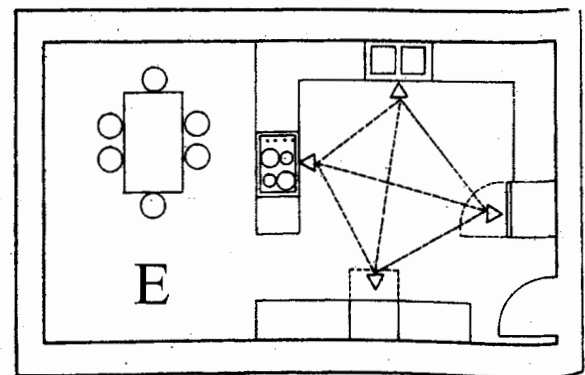
4 Corr plan k



5 L shape k

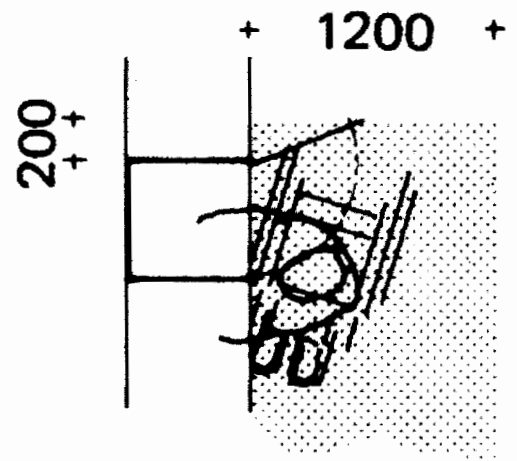
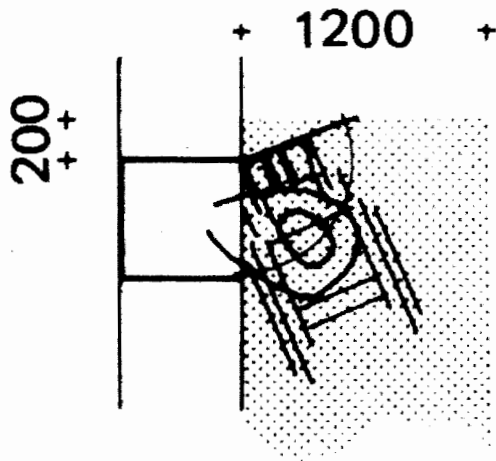
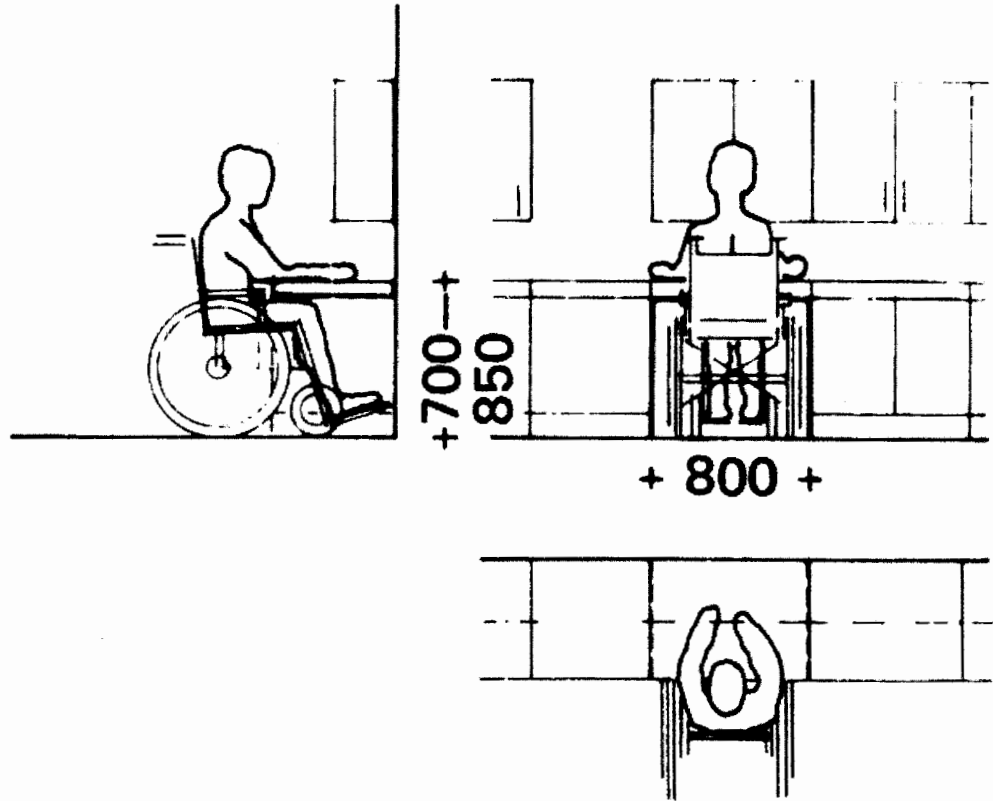


6 Straight wall plan k



7 Square plan k with dining ar

D) The following represents a particular type of design. What is it? [3]



- E) Outline the work of an architect in a building project and who normally support architects in a project [2]
- F) Outline the Erase Command sequence in AutoCAD [3]

