



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of Jkuat)

Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE (DA 09)

EBC 1325 : BUILDING DRAWING & COMPUTER AIDED DESIGN &
DRAFTING

END OF SEMESTER EXAMINATION

SERIES: AUGUST/SEPTEMBER 2011

TIME: 3 HOURS

Instructions to Candidates:

You should have the following for this examination

- *A personal computer or a laptop computer installed with the following application software:-*
 1. *A word processor*
 2. *AutoCAD*

Create a folder in *My Documents* and name it *DA 09 FE 11*; Save *ALL* your answers in *Word* and *AutoCAD* in this folder. Name your *Word* and *AutoCAD* files using your FULL names followed by your student number.

This paper consists of **FIVE** questions in **THREE** printed pages

Question 1 (30 marks)

- a) (i) List **THREE** major areas to be considered when organizing space in a residential building.
- (ii) State **FOUR** key objectives of house design
- (iii) State **THREE** advantages of using CAD in the designing of building projects (10 marks)
- b) Fig 1. Below shows a single line sketch floor plan of a proposed residential building. Using AutoCAD, draw the floor plan using a wall thickness of 200mm for both internal and external walls (20 marks)

Question 2 (20 marks)

Refer to fig 1 below

The figure shows a single line sketch floor plan of a proposed residential building. Assuming that the building will be covered using a reinforced concrete flat roof, using AutoCAD draw:

- (i) The Front Elevation
- (ii) The Right Hand Side Elevation of the proposed building (20 marks)

Question 3 (20 marks)

Low cost 2 bed roomed houses are required in a slam upgrading scheme. Design and draw a suitable **floor plan** satisfying the following requirements:

- (i) **Bedrooms:** Minimum floor area = 10m²
Least room dimension = 3m
- (ii) **Sitting room:** Minimum floor area = 15.12m²
Least dimension = 3.6m
- (iii) **Corridors/lobbies:** Atleast 1050mm wide
- (iv) **Veranda:** at the front door at least 1800mm wide
- (v) **Loadbearing walls** = 200mm thick
- (vi) **Non loadbearing partition walls** = 150mm thick
- (vii) **W.c. and bath room** (separate) (20 marks)

Question 4 (20 marks)

The following information relates to a 200mm thick boundary wall with brick facing to the external side and 15mm thick render to the internal side.

- 110 mm wide x 15mm thick facing bricks fixed to wall in 10mm thick mortar
- 750mm wide x 250mm deep plain concrete strip foundation
- 250mm x 50mm coping stone
- Height of wall = 2700mm from average ground level
- Depth of strip foundation = 750mm

Draw a section through the wall using AUTOCAD (20 marks)

Question 5 (20 marks)

a) Briefly explain the specific requirements for any **TWO** of the following areas in a residential building

- (i) Bedroom
- (ii) Kitchen
- (iii) Sitting room

(4 marks)

b) Explain the purpose of the following items in a working drawing

- (i) Floor plan
- (ii) Elevations
- (iii) Sections

(6 marks)

c) The following information refers to a roof suggested for the proposed residential building shown in fig.1 (10 marks)

- Wall plate – 100 x 50mm
- Tie beam – 150 x 50mm
- Rafter – 150 x 50mm
- Struts/ties – 150 x 50mm
- Purlins – 50 x 50mm
- Galvanized Corrugated Iron sheet
- 100mm PVC rain water gutter
- Fascia board – 200 x 25mm
- Soffit board – 25mm thick T& G boarding
- Roof pitch – 25°

Using AutoCAD, draw a section through the eaves to show the construction details of closed eaves (10 marks)