



TECHNICAL UNIVERSITY OF MOMBASA
**Faculty of Engineering &
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE (DA 12J)

EAR 2306: COMPUTER AIDED DESIGN I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2013

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions

Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question One

- a) Briefly discuss the advantages of using Computer Aided Design application in making architectural drawings: **(10 marks)**
- b) (i) Differentiate between the user coordinate system and the world coordinate system **(4 marks)**
(ii) Explain the use of the following CAD window components:
- Model space
- Menu bars
- Command line **(6 marks)**

Question Two

Two bed-roomed houses are required in a proposed slam upgrading scheme. Design and draw a suitable floor plan to certify the following requirements:

- (i) Bedrooms: - Minimum floor area = 10.8m^2
- Least room dimension = 3.19m
- (ii) Living room: - Minimum floor area = 15.5m^2
- Least room dimension = 3.6m
- (iii) Load Bearing walls: - 200m thick
- (iv) Wash rooms: - Shower room: at least 1.2m wide
- Water closed; at least 0.9m wide

Include any other necessary design information not provided. **(20 marks)**

Question Three

900mm wide by 1.2m height lowered windows have been suggested for the houses in question 2 above. Draw a cross-section through the window to include the control and window cill **(20 marks)**

Question Four

A Six parallel timber door has been suggested for the front door of the houses in question 2 above.

Draw the elevation of the door showing the jambs and permanent vent at the top. **(20 marks)**

Question Five

The following information relates to a pitched timber roof:

- Pitch of roof = 25°
- Roofing material = 450 x 250 concrete roofing tiles
- Rafters, ties, struts, = 1255 x 50 soft wood structural timber
- Tie beam (ceiling joist) = 150 x 50 softwood structural timber

- Wall plate = 100 x 50
 - Load bearing wall = 225thick
 - Facsia board = 200 mm x 25mm
 - Ridge cap = 200mm & half round
 - Battens = 38 x 25mm
 - Clear span = 5.8m
- (Include any other necessary design information not provided)
Draw a section through the roof

(20 marks)