THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)
Faculty of Engineering and Technology

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR BACHELOR OF ENGINEERIG IN BUILDING & CIVIL ENGINEERING

EBC 2117: WORKSHOP TECHNOLOGY I

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: MAY/JUNE 2012

TIME: 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. Question **ONE** is compulsory
Maximum marks for each part of a question are clearly shown
This paper consists of **TWO** printed pages

Question 1 (Compulsory - 30 marks)

a) Discuss the safety aspects in a workshop as pertains to:
   i) The dress code
   ii) Lifting heavy objects, and materials
   iii) Ladders and hoists
   iv) Use of petrol, diesel and electric powered machine (12 marks)

b) For the building shown in Fig. 003 attached, outline the setting out process using the 3:4:5 Pythagoras method. (8 marks)

c) (i) Enumerate six materials suitable for damp proof course (D.P.C) foundation to show:
   - The reinforced concrete foundation
   - Substructure wall
   - The hardcore and the over site concrete slab
   - The location of the D.P.C and damp proof membrane, to meet the local authority regulations (10 marks)

Question 2 (20 marks)

a) Draw a puthes scaffold to show its structural features, designed to enhance its strength and stability (9 marks)

b) For the Puthes Scaffold drawn in Q No. 2(a), detail the working plat form to show its construction to meet building regulations and by laws. (6 marks)

c) With the aid of suitable sketches show the means of tying the Scaffold to a window opening (5 marks)

Question 3 (20 marks)

a) With the aid of suitable sketches, outline the construction of a public staircase (8 marks)

b) (i) Design a suitable staircase for a warehouse ground floor to 1st floor ceiling height 4.5m

(ii) Provide the plan and a section view of the designed staircase (12 marks)

Question 4 (20 marks)

a) Discuss the advantages and disadvantages of timber roof trusses (6 marks)

b) With reference to No 003, the building has a span 8.6m and an asymmetrical roof truss.
   i) Provide details to show its construction
   ii) Detail the profiled roof sheeting, fixed on a pureils with J bolts.
   iii) Wall abutment detail
   iv) Gutter and the down pipe drain, detail (14 marks)

Question 5 (20 marks)

For the building drawn in figure 003, show the plumbing installation to the kitchen and canteen on the 1st floor and distribution from the main water tank located on the roof of the office building third storey (20 marks)