



# MACHAKOS UNIVERSITY

University Examination 2018/2019

**SCHOOL OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF BUILDING AND CIVIL ENGINEERING**  
**FIRST YEAR SECOND TERM EXAMINATION FOR**  
**CERTIFICATE IN BUILDING TECHNOLOGY MODULE 1**

**1704/104: CARPENTRY**

**DATE: 17/4/2019**

**TIME: 8:30 – 11:30 AM**

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## INSTRUCTIONS:

**This paper consists of FIVE questions.**

**Answer ALL the questions.**

1. a) Explain the difference between a carpenter and a joiner. (3 marks)  
b) Name and draw two tools that were used by the old generation. (8 marks)  
c) Draw the following tools  
i) Plane.  
ii) Bevel Square.  
iii) Tenon saw. (9 marks)
2. a) Explain what causes accidents in a workshop and indicate their remedies. (10 marks)  
b) Name and explain five functional requirement of a roof. (10 marks)
3. a) Explain the following roof truss components and their objectives.  
i) Main tie.  
ii) Rafters.  
iii) Ties. (10 marks)  
b) Draw a flat roof and label all its members. (10 marks)
4. Draw a roof front between a roof truss (i.e.) (Rafter) and the wall plate showing the birds' month and explain how it is constructed. (20 marks)
5. a) Draw a (T.R.D.A) roof truss and indicate all its members (10 marks)  
b) Explain the two loads carried by a roof and how they affect the roof. (10 marks)



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University Examination 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR SECOND SEMESTER EXAMINATION FOR  
CRAFT CERTIFICATE IN BUILDING TECHNOLOGY MODULE 1

1704/104 CM CONSTRUCTION MATERIALS 1

DATE: 17/4/2019

TIME: 8:30 – 11:30 AM

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## INSTRUCTIONS:

This paper consists of **FIVE** questions .

Answer **ALL** the questions.

All questions carry equal marks.

1. a) i) Name any four types of cement.  
ii) State any three tests done on cement. (5 marks)
  - b) i) Define the term alloy  
ii) State four uses of copper. (7 marks)
  - c) i) State any two properties o stainless steel  
ii) Describe the following heat treatment of steel:  
-hardening  
-tempering. (8 marks)
2. a) i) List any two metamorphic rocks used in building.  
ii) Outline any two defects in building stones. (4 marks)
  - b) Differentiate between hardwood and softwood. (4 marks)

- c) Using a neat sketch outline the natural process of seasoning timber. (8 marks)
- d) List any four types of clay products. (4 marks)
3. a) List any six mechanical properties of clay products (3 marks)
- b) State four methods of quarrying stones (4 marks)
- c) Briefly explain the classification of rocks on the basis of their geological formation citing examples in each case. (9 marks)
- d) Draw and label the cross section of a mature tree. (4 marks)
4. a) Enumerate three classes of construction materials and give two examples in each case. (12 marks)
- b) Illustrate how intrusive and extrusive igneous rocks are formed. (8 marks)
5. a) With the aid of sketches describe the following methods of conversion of timber;  
-through and through  
- tangential (6 marks)
- b) Differentiate between natural defects and conversion defects in timber . (6 marks)
- c) Define the following properties of construction materials;  
-plasticity  
-thermal conductivity  
-density (6 marks)
- d) State two types of steel (2 marks)