



# 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.
    - (ii) 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)