



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

**SECOND SEMESTER EXAMINATION FOR DIPLOMA IN BUILDING
CONSTRUCTION TECHNOLOGY**

DIPLOMA IN CIVIL ENGINEERING

BCECD 116: CIVIL ENGINEERING MATERIALS I

Date: 1/12/2015

Time: 8:30 – 10:30 AM

INSTRUCTIONS:

- *This paper comprises of five questions*
- *Question one is compulsory and carry 30 marks*
- *Answer any other two questions*

1. (a) Discuss the following methods of seasoning timber:-
 - (i) Kiln seasoning
 - (ii) Air seasoning (6 marks)
- (b) Define the following terms as used in metals :-
 - (i) Malleability
 - (ii) Creep
 - (iii) Ductility (6 marks)
- (c) Differentiate between hardwood and softwood. (8 marks)
- (d) Discuss 2 geological classes of stone and give 2 examples of building stone in each class. (6 marks)

- (e) Outline four properties of cast iron. (4 marks)
2. (a) Discuss the procedure of manufacturing of clay bricks. (12 marks)
- (b) Explain two methods of glazing applied to clay products (6 marks)
- (c) State four uses of clay products (2 marks)
3. (a) Describe the process of extracting pig iron (8 marks)
- (b) Explain the following heat treatment given to metal:-
- (i) Annealing
- (ii) Tempering
- (iii) Normalizing (9 marks)
- (c) State 3 uses of wrought iron (3 marks)
4. (a) Sketch a cross section of a tree trunk naming all the parts and stating the function of each part. (12 marks)
- (b) Discuss the following methods of converting timber:-
- (i) Tangential sawn
- (ii) Quarter/Rift sawn (6 marks)
- (c) State four timber defects (2 marks)
5. (a) Outline five qualities of good stone (5 marks)
- (b) State tree advantages and three disadvantages of stones as building materials (6 marks)
- (c) Discuss crushing test of stones. (4 marks)
- (d) Discuss the following methods of quarrying stones:-
- (i) Wedging
- (ii) Blasting (5 marks)