



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

FIRST YEAR THIRD SEMESTER EXAMINATION FOR

CERTIFICATE IN BUILDING TECHNOLOGY

1704/ CONSTRUCTION MATERIALS 1

DATE: 14/12/2020

TIME: 2.30-5.30 PM

INSTRUCTIONS TO CANDIDATES

This paper consists of five questions

Answer all the questions.

1. a) Define the following terms;
 - (i) Ferrous metal
 - (ii) Non-ferrous metal (4 marks)
- b) Outline three methods of casting iron (3 marks)
- c) Mention five mechanical properties of building materials (5 marks)
- d) Describe the following heat treatment on steel;
 - i. normalizing
 - ii. tempering
 - iii. annealing
 - iv. hardening (8 marks)
2. a) List down and briefly explain seven stages of concrete manufacturing process (14 marks)
- b) Mention three tests done on concrete (3 marks)
- c) State three materials for manufacturing concrete (3 marks)
3. a) List five general properties of construction materials (5 marks)
- b) Outline four defects in building stones (4 marks)
- c) Mention three types of geological classification of rock citing two examples in each case (6 marks)

- d) By use of neat sketches illustrate any two methods of sawing timber (5 marks)
4. a) List down and briefly explain five properties of building materials. (10 marks)
- b) Mention any five alloys and state two uses of each. (10 marks)
5. a) Explain the following defects in timber;
- (i) Shakes
 - (ii) Knots
 - (iii) Checks
 - (iv) End splits (6 marks)
- b) Mention two methods of seasoning timber and briefly explain how each of them is done (6 marks)
- c) Draw and label a cross-section through a mature tree. (5 marks)
- d) State the principal causes of decay in timber (3 marks)