



# 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

FIRST SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL ENGINEERING

BCECD 207: CIVIL ENGINEERING MATERIALS II

Date: 9/8/2016

Time: 2:00 – 4:00 pm

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## INSTRUCTIONS:

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

- Define the term concrete (2 marks)
    - Discuss 4 properties of dry concrete (6 marks)
  - Discuss 3 ingredients used in preparation of concrete (3 marks)
  - Sketch any two machines used in compacting concrete (10 marks)
  - Discuss two methods of curing concrete (6 marks)
- Outline six qualities of good concrete (6 marks)
  - Sketch the following machines used in concreting:-
    - trunk mixer
    - pan mixer (10 marks)
  - Discuss precaution taken when placing concrete. (4 marks)

3. (a) With aid of sketches, discuss the following joints in concrete:-
- (i) Expansion joint
  - (ii) Isolation joint (6 marks)
- (b) Sketch a suitable formwork for a circular concrete column (10 marks)
- (c) Discuss wet process method of manufacturing cements. (4 marks)
4. (a) Differentiate between additives and admixtures stating two example of each (5 marks)
- (b) Explain the following test carried on concrete:-
- (i) Slump test
  - (ii) Tensile test (5 marks)
- (c) Outline 5 precautions to be observed when transporting concrete. (10 marks)
5. (a) Discuss two methods of batching concrete ingredients. (5 marks)
- (b) Explain concrete mix design. (5 marks)
- (c) Discuss the following types of concrete:-
- (i) Plain
  - (ii) Reinforced concrete
  - (iii) Precast concrete
  - (iv) Heavy concrete (10 marks)