



MACHAKOS UNIVERSITY

University Examination 2019/2020

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN CIVIL ENGINEERING

BCECD 207 CONSTRUCTION MATERIALS II

DATE: 6/12/2019

TIME: 8.30-10.30 AM

INSTRUCTIONS

This paper comprises of five questions

Question one is compulsory and carries 30marks

Answer any other two questions

QUESTION ONE (30 MARKS)

- a) Define the following terms
 - i. concrete
 - ii. cement
 - iii. aggregate (6 marks)
- b) State six reasons why aggregate is used with a binder to make concrete (6 marks)
- c) Outline the 4 properties of cements components and their work in cement (8 marks)
- d) Discuss wet process of manufacturing cement and state 3 advantages and disadvantages of it (10 marks)

QUESTION TWO (20 MARKS)

- a) Discuss the following classes of aggregate
 - i. natural aggregate
 - ii. artificial aggregate (6 marks)
- b) Explain 5 properties of wet concrete (10 marks)
- c) Outline 4 qualities of good aggregates (4 marks)

QUESTION THREE (20 MARKS)

- a) Sketch the following machines used in concreting
 - i. Trunk mixer
 - ii. Pan mixer(10 marks)
- b) Explain characteristics of water for making concrete (4 marks)
- c) Explain four precautions taken when placing concrete (6 marks)

QUESTION FOUR (20 MARKS)

- a) Differentiate between admixtures and additives (4 marks)
- b) Discuss 5 types of admixtures (10 marks)
- c) Discuss 3 methods of curing concrete (6 marks)

QUESTION FIVE (20 MARKS)

- a) Discuss two methods of batching concrete ingredients (4 marks)
- b) Sketch a suitable formwork for a rectangular concrete column (6 marks)
- c) Explain the following types of concrete:-
 - i. Plain concrete
 - ii. Reinforced concrete
 - iii. Precast concrete
 - iv. Mass concrete(10 marks)