



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY

UNIVERSITY EXAMINATIONS 2012/2013

2ND YEAR 1ST SEMESTER EXAMINATION FOR THE DIPLOMA
IN BUILDING AND CIVIL ENGINEERING

COURSE CODE: TBC- 2214

COURSE TITLE: CONSTRUCTION MATERIAL TECHNOLOGY I

DATE: 18/4/2012

TIME: 11.00-12.30PM

DURATION : 1.5 HOURS

INSTRUCTIONS TO CANDIDATES

This paper consists of 5 questions

Answer Question ONE and any other TWO Questions

QUESTION ONE

- a) Explain ONE advantage of concrete as a construction material and list SEVEN steps of its manufacture.
(8 Marks)
- b) Define the term workability of concrete and list any SIX factors affecting its value
(6 Marks)
- c) List any FOUR types of concrete on the basis of any classification criteria
(4 Marks)
- d) State any THREE properties fresh state concrete is required to exhibit
(6 Marks)
- e) Describe slump test and its significance in quality control of concrete operations
(6Marks)

QUESTION TWO

- a) Discuss how Water/Cement ratio affect properties of concrete both in plastic and hardened state
(10 Marks)
- b) Explain the procedure of any ONE test for hardened concrete.
(5 Marks)

QUESTION THREE

Explain how the following properties of aggregate affect quality of concrete

- i. Density
- ii. Shape
- iii. Surface texture
- iv. Crushing strength
- v. Grading

(15 marks)

QUESTION FOUR

In reference to concreting operations, explain any THREE precautions you need to take when carrying out the following exercises:

- i. Formwork erection
- ii. Batching of ingredients
- iii. Curing

(15 Marks)

QUESTION FIVE

- (a) Outline steps involved in cement manufacturing process .
(9 Marks)
- (b) Explain any THREE desirable properties of cement and their significance
(6Marks)