

W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**University Examinations 2017/2018**

**END OF SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF**

**CONSTRUCTION MANAGEMENT**

**ABC 2204: MATERIAL SCIENCE I**

**DATE: JANUARY 2018 TIME: 2 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE**

1. Explain the procedure of concrete batching drawing a clear distinction between the two major approaches. [8 marks]
2. State and explain the salient parameters that guide a concrete design mix. [10 marks]
3. Distinguish the two major types of cement. [4 marks]
4. State and discuss four admixtures for concrete property improvement. [8 marks]

**QUESTION TWO**

1. State six advantages of reducing water content in cement paste. [12 marks]
2. Discuss key approaches in curing of concrete. [5 marks]
3. State three symptoms of Alkali Silica Reaction in concrete structures. [3 marks]

**QUESTION THREE**

1. The freshly mixed and hardened properties of concrete may be changed by adding chemical admixtures to the concrete usually at batching. State five purposes of using chemical admixtures. [5 marks]
2. State and explain five properties of cement. [15 marks]

**QUESTION FOUR**

1. Briefly discuss the process of concrete placing and finishing. [12 marks]
2. Aggregates are a key component of concrete and constitute about 75% of the mix. Briefly state and discuss four properties of aggregates as applied in concrete technology. [8 marks]