

**W1-2-60-1-6**

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

# **UNIVERSITY EXAMINATIONS 2014/2015**

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN CONSTRUCTION ENGINEERING AND MANAGEMENT

**ECE 3182 : SUSTAINABLE CONSTRUCTION TECHNOLOGY**

**DATE: AUGUST 2015 TIME: 3 HOURS**

**INSTRUCTIONS:**

**ANSWER ANY FOUR QUESTIONS**

**ALL QUESTIONS CARRY EQUAL MARKS**

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**QUESTION ONE [17.5 MARKS]**

For a balanced triple bottom line of sustainability,

1. Explain the following
2. Economic sustainability
3. Environmental sustainability
4. Social sustainability
5. Describe how the following results from a “sustainable approach” in a construction company. [5.5 marks]
6. Win businesses
7. Manage the company reputation.
8. Attract and retain employees.
9. Sketch a triple bottom line of sustainability diagram for a COAL powered electrical supply. [6.5 marks]

**QUESTION TWO [17.5 MARKS]**

In our society’s endeavour to go green,

1. What is known as the big ticket items? [5.5 marks]
2. Name and briefly describe 5 of them. [5.5 marks]
3. Briefly describe the green baton concept. [6.5 marks]

**QUESTION THREE [17.5 MARKS]**

1. What is an environmental impact assessment ? [EIA] [5.5 marks]
2. Name five benefits of an effective EIA. [5.5 marks]
3. Draw the first three steps for an EIA procedure in Kenya and the same for Tanzania and compare the two. [6.5 marks]

**QUESTION FOUR [17.5 MARKS]**

1. Fire protection is an extension of sustainable construction. Discuss. [5 marks]
2. Define prescriptive fire protection method. [5 marks]
3. Define performance based fire protection design. [4 marks]
4. What are the advantages of one over the other? [3.5 marks]

**QUESTION FIVE**

1. Discuss maintenance as an extension of sustainable construction. [5.5 marks]
2. Explain how design considerations can affect maintenance costs. [5 marks]
3. Describe the main obstacles and challenges in maintenance of major public projects. [6.5 marks]