



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY MAIN EXAMINATIONS  
2015/2016 ACADEMIC YEAR**

**THIRD YEAR FIRST SEMESTER EXAMINATION**

**FOR THE UNIVERSITY DIPLOMA  
IN  
CIVIL ENGINEERING**

**COURSE CODE: DCE 089E**

**COURSE TITLE: CONSTRUCTION PLANNING AND  
MANAGEMENT**

**DATE: FRIDAY 11<sup>TH</sup> DECEMBER 2015    TIME: 9.00 – 11.00 PM**

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**INSTRUCTIONS:**

1. This paper contains **FOUR** questions
2. Answer question **ONE** (compulsory) and any other **TWO** questions
3. Marks for each question are indicated in the parenthesis.
4. Examination duration is **2 Hours**

MMUST observes **ZERO** tolerance to examination cheating

*This Paper Consists of 3 Printed Pages. Please Turn Over.*

**SECTION 1: Answer question 1 (30 marks)**

**QUESTION 1**

- (a) State and explain the main agencies involved in the construction industry. (8 marks)
- (b) (i) Define the term 'Project management'. (2 marks)
- (ii) Explain FIVE functions of project management. (10 marks)
- (c) From the following bill item compute the unit rate.  
*'Excavate to reduced levels average thickness 150mm and cart away to a distance not exceeding 500m from site'*

Assume the following:

- Capacity of scrapper = 10m<sup>3</sup>
  - Allowance of bulking = 25%
  - Round trip time for scrapper = 15 min.
  - Cost of hiring scrapper per hour = Kshs.3000/= (All costs included)
- (10 marks)

**SECTION 2: Answer any other TWO questions (20 marks each)**

**QUESTION 2**

- (a) State the main contract documents applied in Civil Engineering contracts. (4 marks)
- (b) Discuss FIVE construction methods applied in the implementation of Civil Engineering projects. (10 marks)
- (c) Explain the role of the following staff in a construction project?  
(i) Project manager  
(ii) Site agent  
(iii) Clerk of works (6 marks)

**QUESTION 3**

- (a) Compare the mechanized method against the labour-based method of construction. (4 marks)
- (b) Outline the standard methods used for computing the depreciation of plants and equipment on site. (6 marks)
- (c) A Grader used for a road construction was priced at a cost of Kshs.25million and the assessed resale value after 5 years is 20 percent of its delivery price. The machine is to be operated for an average of 2000 hours per year. Compute the hourly depreciation in shillings. (4 marks)
- (d) Describe THREE types of organization structures applied in construction projects giving the advantages of each. (6 marks)

#### QUESTION 4

(a) Define the following terms:

- (i) Activity
- (ii) Event
- (iii) Float
- (iv) Slack

*(8 marks)*

(b) Describe the Critical Path Method of project planning.

*(4 marks)*

(c) As a Project Manager for the proposed hostel construction in MMUST you are required to prepare a construction schedule for the planned project. The details of the project are given below:

- Projected construction period = 52 weeks
- No. of storeys = 3 No.
- Capacity of hostel = 500 students

Prepare a construction schedule using a Gantt chart. Make any other suitable assumptions.

*(8 marks)*

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