



## TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**UNIVERSITY EXAMINATION FOR:**  
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

**ECE 2509: ENGINEERING MANAGEMENT II**  
SPECIAL/SUPPLEMENTARY EXAMINATION  
**SERIES: SEPTEMBER 2018**  
**TIME: 2 HOURS**

### **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of five questions.

Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

### **QUESTION ONE (COMPULSORY) 30 Marks**

- a) Outline the role of the project manager in project management. (6mks)
- b) Describe the open tendering techniques stating its merits and demerits(6mks)
- c) Discuss the remedies available to a party in breach of contract. (6mks)
- d) Outline the following work measurement techniques ,
  - (i) Analytical estimating
  - (ii) Synthesis (6mks)
- e) Discuss the roles of professional bodies in the construction industry with emphasis to discipline and ethical conduct of its members. (6mks)

### **ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

#### **QUESTION TWO (20 Marks)**

- a) Explain the various stages of method study (5mks)
- b) Explain the following terms as applied in work measurement
  - (i) Rating

(ii) Basic time

(iii) Standard time

(iv) Productivity

(6mks)

- c) Determine the standard time for the following operations observed in a work measurement exercise (9mks)

Contract: Nyali Estate phase IV

Study No.36

Date: 20th June 99

Start time 10.30am finish time 10.48am

Operation raising bricks from GF to 1<sup>ST</sup> Floor

Conditions Hot and humid

Element	Rating	Observed Time( mins)	Basic Time
Load hod with 10 bricks	80	1.2	
Hoist hod onto shoulder	90	0.15	
Walk to ladder	100	0.3	
Climb ladder onto scaffold	110	0.75	
Admire scenery	I.T	1.50	
Walk to position and rest hod	90	0.50	
Unload bricks and shoulder hod	120	0.45	
Walk back to ladder	80	0.55	
Descend ladder	90	0.6	
Walk back to stock pile and rest hod	90	0.3	
1.	90	1.10	
2.	100	1.2	
3.	90	0.4	
4.	115	0.6	
5.	90	0.5	
6.	100	0.6	
Light cigar	-	2.15	

7.	100	0.45	
8.	90	0.6	
9.	100	0.45	

**QUESTION THREE (20 Marks)**

a) Explain the following contractual terms

(i) Rescission

(ii) Injunction ,

(iii)Liquidated and ascertained damages

(iv)Subject to contract

(v) Counter offer

(10mks)

b) Draw a contract for the project detailed below:

Project: construction of a pipeline from Mtito Andei to Lamu

Cost: sh.3.6b

Duration 3yrs from June 2017

Client: Kenya Petroleum Industries

Contractor: Pyong contractors Ltd Lamu

(10mks)

**QUESTION FOUR (20 Marks)**

a) Outline the project management stages

(10mks)

b) Describe the following management techniques :

(i) Critical chain project management

(ii) Agile

(10mks)

**QUESTION FIVE (20 Marks)**

a) Describe the management contracting form of work procurement (6mks)

b) Outline the negotiated contracts tendering method and with the aid of hypothetical examples , explain the three main contracts used in the system.

(14mks)