



MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations 2015/2016

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN BUILDING

2707/304: CONSTRUCTION MANAGEMENT II

2705/304: ESTIMATING AND COSTING II

Date: 7/4/2016

Time: 8:30 – 10:30 AM

INSTRUCTIONS

This paper consists of FIVE questions

Answer question one and other two questions in this paper

1. a) Define the following terms as used in management. (5 marks)
 - i) chain of Command
 - ii) span of control
- b) Describe the four cycles of a project. (12 marks)
- c) State three benefits of work-study to an organization (3 marks)
2. a) Outline the roles of the following in the construction industry: (10 marks)
 - (i) Architect
 - (ii) Quantity surveyor
 - (iii) Clerk of works
 - (iv) Bill of quantities
 - (v) Structural engineer

- b) Explain the following documents as used in the supply of materials on a construction site: (10 marks)
- i. Advice note
 - ii. Delivery note
 - iii. Invoice
 - iv. Requisition
 - v. Order
3. a) Explain the aim of work-study in a construction project. (2 marks)
- b) State four objectives of method study (4 marks)
- c) Outline the basic procedure for method study (7 marks)
- d) If an element took 20 minutes and was given a rating of 80%, calculate the basic time. (4 marks)
- e) Outline three factors to consider when selecting and appointing sub-contractors (3 marks)
4. a) State four advantages of critical path method of planning over the Gantt chart (4 marks)
- b) The table below shows the activities of a project;
- (i) Prepare the arrow network diagram
 - (ii) Calculate the earliest and latest finishing time for each activity
 - (iii) Show the critical path (16 marks)
5. a) List down three stages involved when planning a contract (3 marks)
- b) Mention seven factors to consider when planning a site layout (7 marks)
- c) Describe the purpose of a site visit report (4 marks)
- d) Highlight six items in the procedure of the pre-tender planning process of a construction project. (6 marks)

SECTION B ESTIMATING AND COSTING II

Answer any TWO questions from this section

6. (a) List five elements of a unit rate. (5 marks)
- (b) (i) what are preliminary items? (1 mark)
- ii) List seven preliminary items that a contractor would price. (7 marks)
- iii) Build up unit rate for water for works given the following data:
- Tender figure kshs 20million
- Excavation for pipes 100m
- Skilled labour@kshs 80.00 per hour
- Unskilled labour@kshs 40.00 per hour
- Local authority charges kshs 10,000
- Cost of 3/4" G.I Pipe c/b@1200.00
- Make other relevant assumptions. (7 marks)

- 7 Build up unit rates for hoarding given the following data:
- Total perimeter of hoarding 650m
- Cost of fencing posts @kshs 25.00 per ft
- G.C.I Sheets costs kshs 700.00
- No. of reuses is 3
- Skilled labour is kshs 100.00 per hour
- unskilled labour is kshs 55.00 per hour
- assume any other relevant data. (20 marks)

- 8 A mechanical excavator is to be used to carry out excavation work for a proposed development in Machakos town. A contractor has decided to acquire the excavator instead of hiring it from specialist contractors. Using the following data, determine the unit rate for excavation work.

Capital cost (purchase price)	kshs 3,885,000.00
Residual value	kshs 630,000.00
Interest on capital	6% compound

Expected life	5years
Hours worked per annum	1600
Maintenance costs	10% of capital cost per annum
Insurance	included in company overheads
Road license kshs 21,000.00	
Operative's rate	kshs 130.00
Fuel – 5litres per hour	kshs 70.00 per litre
Lubricants	allow 10% of fuel costs
Banksman kshs 50.00 per hour	
Assume any other relevant data.	(20marks)