



MACHAKOS UNIVERSITY

University Examinations 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

THIRD YEAR SECOND SEMESTER EXAMINATION FOR DIPLOMA IN CIVIL ENGINEERING

BCECD 317: MEASUREMENT, ESTIMATING AND COSTING

DATE: 5/6/2017

TIME: 2.00-4.00 PM

INSTRUCTIONS

- This paper comprises of **five** questions
- Question **one** is **compulsory** and carry 30 marks)
- Answer any **other two** questions

- Define the following terminology.
 - Bills of quantities
 - Standard method of measurement (4 marks)
 - Explain the following types of bills of quantities
 - Elemental bill
 - Operational bill (6 marks)
 - Take off all quantities shown on drawing no.01 up to and including the damp proof course (DPC) (20 marks)
- Explain any 4 roles of the quantity surveyor throughout the cycle of a construction project. (8 marks)
 - List any 4 essential attributes of a quantity surveyor. (4 marks)
 - Briefly outline 4 stages in the traditional preparation of bills of quantities. (8 marks)
- Explain the following terms as used in Building and Civil Engineering contracts.
 - Variation order
 - Ascertained damages

- iii. Prime Cost Sum
 - iv. Provisional Sum
 - v. Defects Liability Period (10 marks)
- b) Explain 4 conditions under which a contract period can be extended. (4 marks)
- c) List two methods of paying a contractor. (4 marks)
- 4. a) List 5 sources of cost information. (5 marks)
- b) Outline 3 types of payment certificates prepared by the quantity surveyor. (9 marks)
- c) Explain the following methods of tendering stating two advantages and disadvantages respectfully.
 - i. Serial Tendering
 - ii. Nomination (6 marks)
- 5. a) Explain the following methods of approximate estimating.
 - i. Unit method
 - ii. Floor area method (8 marks)
- b) Using a line diagram explain the components of a unit rate. 5 marks)
- c) Using the data below, calculate a unit rate for, R. C (1. 2. 4) in foundations. (7 marks)

DATA.

- Cement density is 1420 kg per m³ and priced at ksh.700 per bag.
- Density of sand is 1600 kg per m³ and priced at ksh. 1500 per ton.
- Ballast density is 1780 kg per m³ and priced at ksh. 3000 per ton.
- Skilled labour at ksh. 200 per hour.
- Unskilled labour at ksh. 100 per hour.
- Voids on compaction is 50%
- Waste is 5%
- Profit and overheads at 15%
- Hire rate for 200 liter mixer mixer at ksh. 500 per hour.
- Mixer output per hour at 2.4 m³.

NB

- Make reasonable assumptions where necessary.