



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC2102 : ENGINEERING SURVEYING1

END OF SEMESTER EXAMINATION

SERIES: April 2020

TIME: 2 HOURS

DATE: 18 Apr 2020

Instructions to Candidates

You should have the following for this examination

- *Answer Booklet*
- *examination pass*
- *student ID*
- *Scientific Calculator*

This paper consists of five questions.

Attempt any THREE questions.

Do not write on the question paper.



QUESTION ONE (20 Marks)

(a) Briefly explain three measurement errors in chain surveying, sighting two examples of each **(12 marks)**

(b)A chain of nominal length 30m measures 30.05 m when compared with standard length. If this chain is used to measure a length AB and the measurement recorded is 241.35 m, determine the true length of line AB . If an area of 7.5 Ha was computed for measurements taken using this chain, determine the true area **(4 marks)**

(c) Explain the following equipment for marking station:-

(i) Ranging rod

(ii) Land chain arrow **(4 marks)**

QUESTION TWO (20 Marks)

(a) Define the following terms used in leveling

(i) Line of collimation

(ii) Height of collimation **(4 marks)**

(b)Briefly describe temporary adjustment of tilting level **(10marks)**

(c) Define the following terms used in contouring

(i) Contour Line

(ii) Contour Interval

(iii) Horizontal Equivalent **(6marks)**

QUESTION THREE (20 Marks)

(a) With the aid of a sketch describe the principle of leveling **(10 marks)**

b) The following is a series of leveling observations taken in a sequence starting on a bench mark with a reduced level of 300.00m . The instrument was moved after the third, sixth and eleventh readings.4.502, 1.928 , 4.327 , 0.315 , 2.421 , 1.519, 1.620, 3.672, 3.802, 4.925 , 0.982.

Prepare a level book form, enter the readings and reduce the readings by the rise and fall method, applying arithmetical checks **(10 marks)**

QUESTION FOUR (20 Marks)

(a) State the purpose of surveying **(5Marks)**

(b) Briefly explain the following as used in chain surveying

(i) Base line

(ii) Check line

(iii) Tie line **(6 Marks)**

(c) Explain the operations involved in chain survey **(9Marks)**

QUESTION FIVE (20 Marks)

(a) Explain the procedure of carrying out a reconnaissance in chain surveying **(6 marks)**

(b) Explain the principles of selecting chain lines and marking stations when carrying out chain surveying **(6 mark**

(c) List out the various sources of errors in leveling **(8marks)**