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 SURVEYING 1

END OF SEMESTER EXAMINATION
SERIES: AUGUST 2019
TIME: 2 HOURS
DATE: 12 Aug 2019

Instructions to Candidates
You should have the following for this examination
    -*Answer Booklet, examination pass and 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) Define the following terms as used in chain surveying

(i) Chain surveying

(ii) Base line

(iii) Survey station

(iv) Triangulation

(v) Trilateration   (**10 marks**)

(b) Describe the procedure of taking field notes in chain surveying   (**12 marks**)

QUESTION TWO (20 Marks)

(a) With the aid of a sketch, briefly explain a procedure of ranging a line through a

depression   (**5 marks**)

(b) Briefly explain THREE main types of errors in chain surveying   (**9 marks**)

(c) A chain of nominal length 20m measures 20.08 m when compared with standard length.
This chain was used to measure a length AB and the measurement recorded was 131.65 meters
An area of 6.5 Ha was commutated for measurements taken using the chain. Determine the true
length of line AB   and True area   (**6 marks**)

QUESTION THREE (20 Marks)
(a) Define the following as applied in leveling:-

(i) Ordinance Survey bench mark

(ii) Line of collimation

(iii) Temporary Bench Mark

(iv) Back sight

(v) Fore sight   (**10marks**)

c) Briefly describe the procedure of making temporary adjustments to dumpy level (**10 marks**)

QUESTION FOUR (20 Marks)

(a) When checking a dumpy level, the following readings were obtained in the " two peg test "

-Level set up midway between two staff stations A and B, 150 m apart, staff reading on A is 2.103m and on B is 1.664m

-Level set up 50m behind B and in line AB, staff reading on B is 1.389 and on A is 1.859m

(i) Calculate the true reading on staff at A and B

(ii) Explain how you will adjust the line of collimation　　　　　**(10 marks)**

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

QUESTION FIVE (20 Marks)

a) (i) Explain FIVE characteristics of contours

(ii) Briefly describe direct method of contouring　　　　**(8 marks)**

b) A leveling instrument was used to determine ground levels at points along the line of the trench, and staff readings are as shown in the table.

B.S.	I.S.	F.S.	R.L.
1.680			114.44
	1.72		
	2.00		
	2.44		
	3.12		
	2.90		
	2.14		
0.52		2.00	
	2.26		
	2.62		

3.34		2.96	

(i) Complete the rise and fall columns and reduce the levels

(ii) Carry out the usual arithmetic checks   (**12 marks**)