



TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING
AND
DIPLOMA IN QUANTITY SURVEYING

EBC 2102 ENGINEERING SURVEYING I

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 22 Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

-Drawing instruments.

-Scientific calculator

This paper consists of five questions.

Attempt any THREE questions.

Do not write on the question paper.

Question One

(a) Define the following terms:-

- (i) Chain surveying
- (ii) Base line
- (iii) Survey station
- (iv) Check line
- (v) Offset

(6 marks)

(b) With the aid of a sketch, briefly explain the term “witnessing a station”

(5 marks)

(c) Briefly explain the procedure of taking field notes in chain surveying

(9 marks)

Question Two

(a) With the aid of a sketch, briefly explain a procedure of chaining a cross a river/ busy road by setting out right angles

(8 marks)

(b) Briefly explain THREE main kinds of errors in chain surveying

(9 marks)

(c) A chain of nominal length 20m measures 20.05 m when compared with standard length. If this chain is used to measure a length AB and the measurement recorded is 131.35 m, determine the true length of line AB

(3 marks)

Question Three

a) Define the following as applied in leveling:-

- (i) Bench mark
- (ii) Line of collimation
- (iii) Spot height
- (iv) Back sight
- (v) Fore sight

(5 marks)

b) Define the following terms as used in adjustments of the leveling instruments

(i) Temporary adjustment

(ii) Permanent adjustment

(4marks)

c) Briefly describe temporary adjustments of tilting level

(11 marks)

Question Four

(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, 100m apart, staff reading on A is 2.103m and on B is 1.664m

-Level set up 10m 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) (i) Explain the essential difference between the Automatic level and other types of levels

(ii) Explain the parallax adjustment procedure for a level

(10 marks)

Question Five

a) Explain FIVE characteristics of contours

(5 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, and 0.982.

Prepare a level book form, enter the readings and reduce the readings by the rise and fall method, applying arithmetical checks

(15 marks)