



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
CERTIFICATE IN CONSTRUCTION TECHNICIAN PART II

EBC 1117: TRAVERSING SURVEY

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: JULY 2013

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer Booklet
- Pocket calculator
- Pencil & Eraser

This paper consist of **FIVE** questions

Answer question any **THREE** questions
 Maximum marks for each part of a question are as shown
 This paper consists of **THREE** printed pages

Question One (20 marks)

- a) Table 1 shows the reduced bearings of line AB and AC. Calculate the internal included angle.

Table 1

AB	N 30° 10'E	AC	N79° 45'E
AB	N 15° 40'E	AC	S50° 40'E
AB	S 45° 00'E	AC	N45° 30'E
AB	N 60° 30'E	AC	N30° 25'W

- b) The bearings of a closed traverse ABCDE are as shown in table 2 below.

Table 2

Line	Forward Bearing	Back Bearing
AB	107° 15'	287° 15'
BC	22° 00'	202° 00'
CD	281° 30'	101° 30'
DE	181° 15'	1° 15'
EA	124° 45'	304° 45'

Compare the interior angles of the traverse and apply the necessary checks. **(12 marks)**

SECTION B (Answer any TWO questions)

Question Two (20 marks)

- a) Compute the back bearing of the following bearings:
 i. 60° 30'
 ii. 200° 40'
 iii. 135° 20'
 iv. 352° 00' **(4 marks)**
- b) Define the following terms:
 i. Whole circle bearing
 ii. Partial co-ordinates
 iii. Polar co-ordinates
 iv. Join **(8 marks)**
- c) With the aid of a sketch, illustrate the construction of a prismatic compass **(8 marks)**

Question Three (20 marks)

- a) Define the following terms:
 i. Angles
 ii. Bearings
 iii. Magnetic meridian
 iv. Local meridian
 v. Grid meridian
 vi. Co-ordinate system **(9 marks)**
- b) Table 3 shows the datum co-ordinates of points S1 and S2

Table 3

S1	2673.1mE	2377.6mN
S2	2477.8mE	2106.9mN

Compute the distance, quadrantal and whole circle bearing of S1 – S2

(6 marks)

c) Convert the following whole circle bearings into Reduced Bearings

- i. 70° 30'
- ii. 125° 00'
- iii. 220° 00'
- iv. 310° 30'
- v. 270° 00'

Question Four (20 marks)

a) The internal clockwise angles of a closed polygonal traverse are as shown in Table 4. Calculate and tabulate the corrected bearings, given the whole circle bearing of line PQ as 100° 00' 00" **(12 marks)**

Table 4

Angle	Observed Value
PQR	120° 20' 00"
QRS	86° 00' 40"
RST	341° 34' 20"
STV	60° 22' 00"
TUP	100° 28' 20"
UPQ	11° 14' 10"

b) State **FOUR** points to be considered when selecting station for compass traverse. **(6 marks)**

c) State any **TWO** merits of compass traversing **(2 marks)**

Question Five (20 marks)

a) Define the following terms:

- i. Compass traverse
- ii. Isoonals
- iii. Variation of declination
- iv. Local attraction

(6 marks)

b) Outline **THREE** uses of compass traverse **(3 marks)**

(3 marks)

c) Table 5 shows magnetic bearings in which are expected a local attraction presence. Use the readings to calculate the bearings corrected for local attraction **(11 marks)**

(11 marks)

Line	Forward Bearing	Back Bearing
AE	319° 00'	135° 30'
AB	72° 45'	252° 00'
BC	349° 00'	167° 15'

CD	298° 30'	118° 30'
DE	229° 00'	48° 00'