THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)
(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

CERTIFICATE IN CONSTRUCTION TECHNICIAN PART II

EBC 1117: TRAVERSING SURVEY

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: OCTOBER 2012
TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
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)**

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)**

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'