TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

CERTIFICATE IN BUILDING AND CIVIL ENGINEERING

EBC 1204: CIVIL ENGINEERING SURVEY 11

END OF SEMESTER EXAMINATION

SERIES: AUGUST 2019

TIME: 2 HOURS

DATE: Pick Date August 2019

Instructions to Candidates
You should have the following for this examination
    -*Answer Booklet, examination pass and student ID*
This paper consists of **FIVE** questions. Attempt any THREE questions.
Do not write on the question paper.

Question One

1(a). Desribe the stages of temporary adjustment of a prismatic compass   **(12 marks)**

  (b). Briefly describe the FOUR types of coordinate systems   **(8 marks)**

Question Two

2(a). Define the following terms as applied in theodolite work

   i.   Transitting
   ii.   Swing
  iii.   Line of collimation
  iv.   Face right reading   **(4 marks)**

2 (b). The figure 1 shows the lines and the angles of a link traverse ABCDEFG and H. Given the W.C.B's of line AB and GH as 119^0 11' 20'', 101^0 13' 10'' respectively. Calculate the corrected whole circle bearing of other lines.
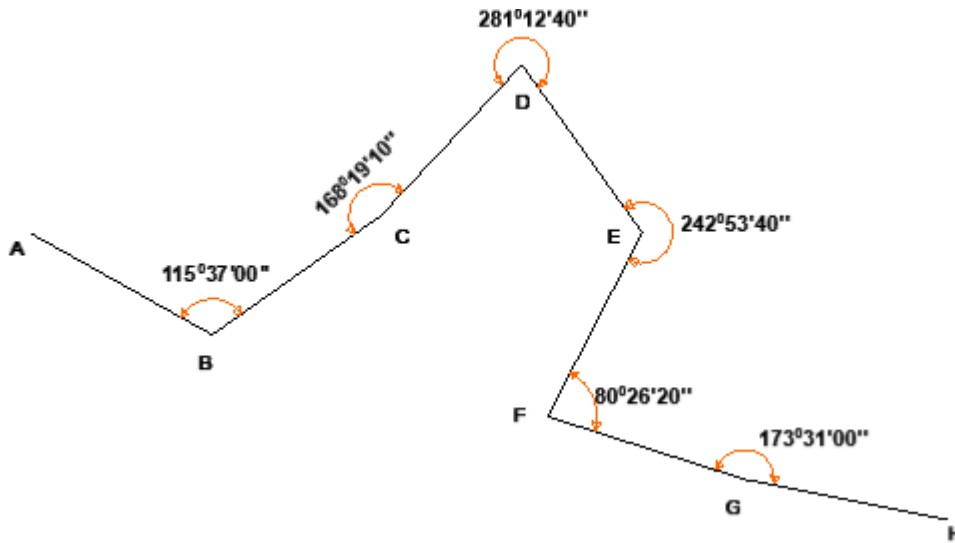
figure1

(10 marks)

(c). Given the coordinates of *A* and the distance and bearing of *AB*, calculate the coordinates of point *B*.

E_A = 48 964.38 m, N_A = 69 866.75 m,   WCB *AB* = 299^0 58'46''

Horizontal distance = 1325.64   **(6 marks)**

Question Three

3(a). Compute the following quadrant bearings into the whole circle bearings
  I.   N 45^0 30' E
  II.   S 30^0 40' E   **(4 marks)**

(b). Convert the following WCB into reduced Bearings

  i. 49^0
  ii. 240^0
  iii. 133^0
  iv. 335^0 **(4 marks)**

(c). The following bearings are observed while traversing with a compass. Eliminate any effects of local attraction.

Line	Fore bearing	Back bearing
AB	126^0 45'	308^0 00'
BC	49^0 15'	227^0 30'
CD	340^0 30'	161^0 45'
DE	258^0 30'	78^0 30'
EA	212^0 30'	31^0 45'

(12 marks)

Question Four

4(a). State any SIX uses of a theodolite   **(6 marks)**

  (b). Outline FIVE advantages of tracheometric survey   **(5 marks)**

  (d). With aid of a sketch, describe the principle of tacheometry   **(9 marks)**

Question Five

5(a). Table 2 is an abstract from a traverse sheet for a closed traverse.

LINE	BEARING	LENGTH (m)
AB	69^0 42' 47''	134.11
BC	145^0 30' 14''	82.60
CD	200^0 37' 09''	102.94
DE	277^0 59' 58''	168.68
EA	17^0 43' 10''	98.76

  Table 2

Adjust the traverse by Bowditch's method rule given coordinates of A as; 200.00mE and 500.00Mn   **(20 marks)**