THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING

CERTIFICATE IN CONSTRUCTION TECHNICIAN II
(09A)

SEMESTER EXAMINATIONS

APRIL/MAY 2010 SERIES

EB 1117 - SURVEYING (TRAVERSING)

TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examinations:

- Question paper
- Answer booklet
- Scientific calculator

This paper consists of **FIVE**, Questions.
Answer Question **ONE** and any other **TWO** Question.
The maximum marks for each part of a question are as shown.

Question ONE

(a). (i). Define the following term 1 as used in a co-ordinate system.

- Polar co-ordinates
- Geographical co-ordinates
- Rectangular co-ordinates
- Polar co-ordinates
- Reduced bearings

(ii). State **TWO** uses of polar co-ordinates. **(7 Marks)**

(b). State the function of each of the following parts of a prismatic compass:-

(i). the pivot
(ii). the jewel
(iii). the needle
(iv). the compass card or ring
(v). the eye vans
(vi). the prism **(6 Marks)**

(c). Covert the following reduced bearings into whole circle bearings.

(i). N 45º E
(ii). N 25º W
(iii). S 42º E
(iv). S 89º W **(4 Marks)**

(d). Convert the following whole circle bearings into reduced bearings.

(i). 125º
(ii). 308º
(iii). 1770º
(iv). 895º **(6 Marks)**

(e). Given the co-ordinates of points T and R as:

T : 550.00 mE, 125.00 mN
T : 184.75 mE, 890.00 mN

Calculate, using a Join computation table:
(i). The length TR
(ii). Bearing RT **(7 Marks)**

Question TWO

(a). Differentiate between the following terms:

(i). Forward and Back Bearing
(ii). Local Attraction and Irregular Variations.

(5 Marks)

(b). The information show in table 1 is for a closed polygonal traverse W, X, Y, Z, W. Given the whole circle bearing of line WX as 136º 14′ 15′′.

(i). Adjust the tranverse for a any angular misclosure
(ii). Calculate the partial co-ordinates of the lines. **(15 Marks)**

Table 1

Line	Length	Clockwise Internal Angles		
		°	′	′′
WX	114.21	90	14	13
XY	129.15	83	42	23
YZ	104.96	78	38	59
ZW	96.11	107	24	32

Question THREE

Table 2 and fig.1 shows the data for a link traverse N, P, Q, R, S, T, U, V. Given the whole circle bearing of lines NP: as 197º 00′ 00′′ and UV as 128º 21′ 56′′.

Table 2

Line	Length	Angle
NP	56.89	
PQ	86.27	92º 7′ 20º
QR	102.79	260º 50′ 10º
RS	99.00	86º 40′ 10º
ST	100.27	135º 15′ 16º
TU	72.89	155º 17′ 17º
UY	90.78	281º 11 42º

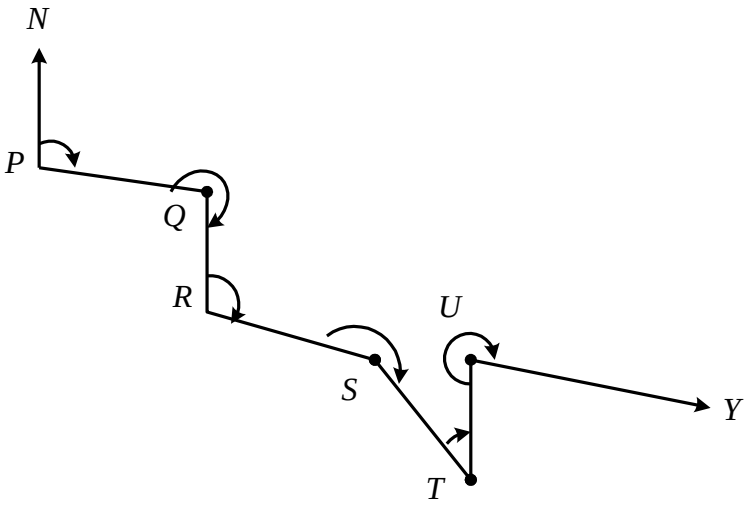

Fig. 1

(a). The corrected whole circle bearings of lines: PQ, QR, RS, ST, T, U.

(b). The partial co-ordinates of the lines. **(20 Marks)**

Question FOUR

(a). State the aims of a reconnaissance survey to a compass traverse. **(2½ Marks)**

(b). State any **FIVE** points to be considered in the selection of stations for a compass transverse. **(7½ Marks)**

(c). With the aid of a sketch describe the graphical adjustment of a compass transverse. **(10 Marks)**

Question FIVE

(a). State any **THREE** merits of a compass traverse. **(3 Marks)**

(b). The data shown in table 3 is for a compass traverse A, B, C, D, E, F, G, A. Adjust the traverse for local attraction.

Table 3

Line	Forward Bearing	Back Bearing
AB	167º 15′	347º 30′
BC	87º 45′	267º 30′
CD	4º 15′	184º 00′
DE	312º 45′	132º 30′
EF	200º 15′	20º 15′
FG	234º 30′	54º 45′

(17 Marks)