



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING

DIPLOMA IN CIVIL ENGINEERING

DIPLOMA IN ARCHITECTURE

SEMESTER EXAMINATIONS

MAY 2010 SERIES

EB 2129 : SURVEY II

TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination:

- Answer booklet
- Pocket Calculator
- Pencil
- Eraser

This paper consists of **FIVE** Questions.

Answer **THREE** questions **ONLY**.

Question **ONE** is **COMPULSORY**.

Maximum marks to each part of a question are all shown.

Question ONE

- (a). Shown in the table 1 are stadia tacheometric survey observation with the instrument held vertically. The instrument constants were 100 and 0. Given the reduced level of the instrument station as 570.00m. Calculate:-
- (a) Distance S,T
 - (b) The difference in height between RS and RT
 - (c) The reduced level of points S and T
 - (d) Difference in height between S and T
 - (e) Area in square metres
 - (f) The partial Northings of line RS.

Table 1

Instrument Station	To station	Horizontal angle	Vertically angle	Staff readings	Height instrument
R	S	060800	+530	1.250, 1.500, 1.750	1.600
	T	560800	-130	2.450, 3.110, 3.775	1.600

(20 Marks)

- (b). A closed compass traverse ABCD was conducted round a dam and the bearings shown in table 2 were obtained. Determine which of the stations are suffering from local attraction and give the values of the corrected bearings.

Table 2

Line	Fore-bearing	Back-bearing
AB	74°20`	256°00`
BC	107°20`	286°20`
CD	224°50`	44°50`
DA	306°40`	126°00`

(10 Marks)

Question TWO

- (a). Define the following terms as applied in the theodolite work.
- (i) Centering
 - (ii) Swing
 - (iii) Face right reading
 - (iv) Trunnion axis
 - (v) Levelling

(5 Marks)

(c). Write the back bearing of the following bearings:-

(i) $180^{\circ}30'$

(ii) $80^{\circ}30'$

(iii) $380^{\circ}40'$

(iv) $220^{\circ}20'$

(4 Marks)

(d). Define the following terms as used in compass traverse.

(i) Angle of declination

(ii) Isogonal

(iii) Local attraction

(iv) Magnetic meridian

(8 Marks)

Question FIVE

(a). Take the datum co-ordinates of two points as shown in table 4. Compute the distance and bearing between A and C.

Table 4

	E	N
A	2496.769	2009.577
C	2983.699	2122.274

(5 Marks)

(b). A T2 theodolite having a multiplying constant of 100 and an additive constant of 0 was centred and leveling at a height of 1.58m above point 'P' of reduced level 100.00m. A leveling staff was held vertically at points 'X' and 'Y' in turn and the readings shown in Table 5 were recorded.

Table 5

Staff position	Staff reading (m)	Vertical circle	Horizontal circle reading
X	2.140, 1.956, 1.774	+02°17'27"	28°44'11"
Y	2.082, 1.815, 1.546	-03°16'14"	95°12'52"

Calculate:-

(i) The reduced level of point "X" and "Y"

(ii) The horizontal distance PX and PY.

(15 Marks)