THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering & Technology

DEPARTMENT OF CIVIL AND BUILDING ENGINEERING

DIPLOMA IN CIVIL ENGINEERING
DIPLOMA IN BUILDING AND CIVIL WITH CAD
HIGHER DIPLOMA BRIDGING

SEMESTER EXAMINATIONS

APRIL/MAY 2010 SERIES

SURVEY III

TIME: 2 HOURS

Instructions to Candidates

You should have the following for this examination:
- Answer booklet
- Pocket Calculator
- Pencil
- Eraser

This paper consists of **EIGHT** Questions.
Answer **THREE** Questions only.
Maximum marks for each part of a question are as shown.

Question ONE

(a). (i). State **SIX** points to be considered when selecting stations for a theodolite traverse survey. **(10 Marks)**

(ii). State **TWO** purpose of theodolite traversing.

(b). The following data refer to a closed link traverse PQRS.

LINE	LENGTH (M)	CORRECTED WHOLE CIRCLE BEARING
PQ	500.78	150° 40′ 20″
QR	60.39	140° 30′ 20″
RS	290.98	305° 40′ 20″
ST	568.06	104° 40′ 10″

Given datum co-ordinates:

P; 2500.00mE   2000.00mN
T; 3097.00mE   1543.10mN

Compute the total co-ordinates of point Q, R and S, adjusting any misclosure by the Bowdith's method. **(20 Marks)**

Question TWO

(a). A circular curve; 415.00m radius is to be set out to connect two straights deflecting at an angle 24°. Given the chainage of the intersection point as 10007.00m and the curve is to be set out by the continuous chainage basis. Calculate the data for setting out the curve, by the Theodolite and tape method. **(20 Marks)**

Question THREE

(a). Define the following terms:

(i). Bulking
(ii). Haul
(iii). Average haul distance
(iv). Free haul distance
(v). Station metre
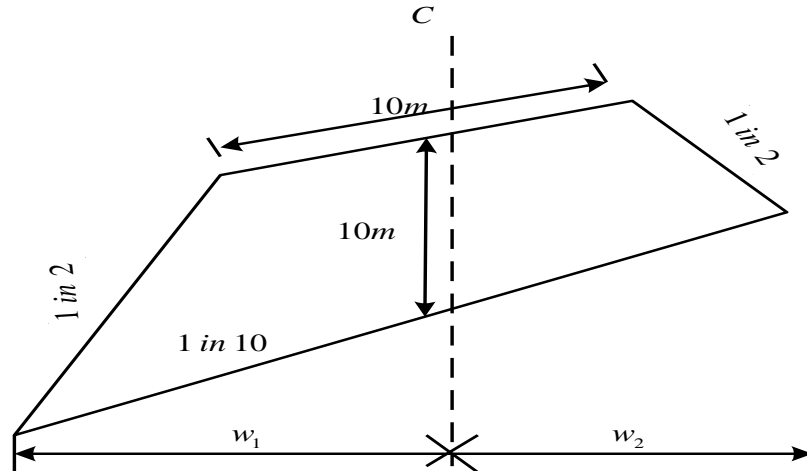(vi). Balancing line **(9 Marks)**

(b).

Fig. 1

The figure 1 shows the cross-section of an embankment, using the rate of approach technique, calculate:

(i).   The side width W_1 and W_2
(ii). The area of the cross-section   **(11 Marks)**

Question FOUR

The data shown in table 2 is for closed loop traverse XYZX; given the co-ordinate of point X as: 1750.00mE, 2269.00mN and the whole circle bearing of lien X-Y as 113° 37′ 45″. Compute the traverse using a traverse computation sheet, adjusting for any misclosure by the Bowditch's method.

Table 2

Line	Uncorrected Internal Angles	Length
X – Y	50° 01′ 30″	516.26
Y – Z	26° 14′ 00″	407.25
Z – X	103° 14′ 00″	234.96

(20 Marks)

Question FIVE

(a).   State any **FOUR** characteristic of mass haul diagrams.   **(6 Marks)**

(b).   A road excavation runs between **THREE** consecutive cross sections 20m apart. If the ground is level about the centre line falling longitudinally between the respective cross-sections such that centre heights are 1.8m, 1.6m, 1.4m. Compute the volume, for the slide slopes are 1:1.5 and formation width is 9.0m, using the prismodal formular.   **(10 Marks)**

(c).   Differentiate between closed oriented traverse sad Ray trace traverse.   **(4 Marks)**