TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

DIPLOMA IN BUILDING & CIVIL ENGINEERING (DBCE 12M)

EBC 2211: ENGINEERING SURVEYING III

END OF SEMESTER EXAMINATION
SERIES: APRIL 2014
TIME ALLOWED: 2 HOURS

Instructions to Candidates:
You should have the following for this examination
- *Answer booklet*

This paper consists of **FIVE** questions. Answer any **THREE** questions of the **FIVE** questions
All questions carry equal marks

Question One

a) Differentiate between the following pair of terms:
  (i) Circular curves and vertical curves
  (ii) Short chords and long chord
  (iii) Degree of curve and major offset   **(6 marks)**

b) A simple circular curve 13m radius deflecting at an angle of 86º is to be set out to connect two intersecting straights. Given that the curve is to be set out by the method of offsets from the long chord, calculate the setting out data for the curve.   **(14 marks)**

Question Two

A circular curve deflecting at an angle of 27º is to be set out to connect two intersecting straights. Given the radius of the curve as 412m and the chainage of the intersecting point as 2050.00m, calculate the setting out data for the curve for 20m standards chords and continues chainage, assuming that the theodolite and tape method will be used.   **(20 marks)**

Question Three

Figure 1 shows the data for a closed polygonal traverse JKLJ. Compute the traverse adjusting for any misclosure by the transit rule. Given the whole circle bearing of line JK as 61º 35' 14" and the coordinates of point J as 2000.00mE 4000.00mN   **(20 marks)**

        Figure 1

Question Four

a) (i) Define the term setting out.

   (ii) Differentiate between the terms horizontal control and vertical control.   **(3 marks)**

b) Describe the plumb bob-method of controlling the vertically of tall structures.   **(6 marks)**

c) With the aid of sketches, describe the vertically control of tall structures by vertical sighting.

(11 marks)

Question Five

a) State any FIVE characteristics of mass haul diagrams. **(5 marks)**

b) State any FOUR uses of mass-haul diagrams **(4 marks)**

c) Differentiate between the following pair of terms: **(6 marks)**
    (i) Waste and borrow
    (ii) Balancing line and mass-haul diagram
    (iii) Average haul distance and overhaul
d) The information shown in table 1 is for a plot of land. Calculate the area of the land by:
    (i) Trapezoidal method
    (ii) Simpsons method **(6 marks)**

Table 1

Offset	2.55	7.53	15.81	18.90	12.00	8.51	7.22	3.70
Chainage	0	20	40	60	80	100	120	140