THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

((A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology in Conjunction with Kenya Institute of Highways and Building & Technology (KIHBT)

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

HIGHER DIPLOMA IN BUILDING & CIVIL ENGINEERING
(BUILDING SERVICES OPTION)

EBE 3107: SITE SURVEYING & SETTING OUT I

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2012
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*
- *Scientific Calculator*

This paper consists of **FIVE** questions
Answer any **THREE** questions

Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

Question One (20 Marks)

a) Define the following terms as used in leveling:
- **(i)** Leveling
- **(ii)** Level line
- **(iii)** Reduced Level
- **(iv)** Datum Level
- **(v)** Bench Mark
- **(vi)** Change Point **(6 marks)**

b) (i) Describe the procedure of leveling a dumpy level

(ii) State the basic requirements of a dumpy level. **(8 marks)**

c) Define the following types of leveling stores:

- **(i)** Telescopic staff
- **(ii)** Folding staff
- **(iii)** Single length staff **(6 marks)**

Question Two (20 marks)

a) Define the following terms:
- **(i)** Ranging
- **(ii)** Chainage
- **(iii)** Survey station
- **(iv)** Base line
- **(v)** Off set **(5 marks)**

b) With the aid of sketch, explain the procedure for determining the length of a chain line across each of the following obstacles by setting out right angles:
- **(i)** Wide river
- **(ii)** A pond **(8 marks)**

c) With the aid of a sketch, describe a method of ranging a line over a small hill. **(7 marks)**

Question Three (20 marks)

a) With the aid of a sketches, briefly describe the following chain surveying equipment:
- **(i)** Metric chain
- **(ii)** Ranging rod **(8 marks)**

b) Briefly explain the procedure of chaining between stations. **(8 marks)**

c) State **FOUR** factors governing the selection of chain lines for chain survey. **(4 marks)**

Question Four (20 marks)

a) Reduce the levels shown in table 1 by rise and fall method. Apply arithmetical checks. **(14 marks)**

Table 1

BS	IS	FS	Remarks
3.200			BM 500.000M
	2.010		Station R
	1.050		Station S
3.250		0.650	Station T
	2.980		Station U
	1.500		Station V
	2.200		Station W
		0.680	Station X

With the aid of a sketch, briefly explain the "inverted staff leveling" procedure. **(6 marks)**

Question Five (20 marks)

a) Define the following terms:
(i) Sectioning
(ii) Longitudinal section
(iii) Cross-section **(6 marks)**

b) State any **TWO** uses of sections in (i) and (ii) above. **(4 marks)**

c) Outline the procedure of running a longitudinal section. **(10 marks)**