



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

EBE 3107: SITE SURVEYING & SETTING OUT

END OF SEMESTER EXAMINATION SERIES: AUGUST 2012 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 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)** 

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a)	Differentiate geodetic surveying from plane surveying.	(3 marks)	
b)	<ul> <li>Define the following types of surveys:</li> <li>i) Engineering surveys</li> <li>ii) Cadastral surveys</li> <li>iii) Aerial surveys</li> </ul>	(4 ½ marks)	
c)	Explain briefly the chain surveying principle of working from whole and to part.	(4 ½ marks)	
d)	Explain briefly the actual chain surveying procedure.	(8 marks)	
Question Two (20 marks)			
a) b)	<ul> <li>(i) State <b>THREE</b> classes of errors in chain surveying giving an example of each.</li> <li>(ii) A chain believed to be 100m was used to confirm the dimensions of a 1.6 ha squa area of the plot calculated from the field measurement was 1.625 ha. Calculate the chain used.</li> <li>With the aid of a sketch, describe the following surveying equipment.</li> <li>i) Land chain</li> <li>ii) Ranging rod</li> </ul>	-	
	iii) Chain arrow	(9 marks)	
c)	Differentiate between chaining and chainage.	(2 marks)	
Question Three (20 marks)			
a)	<ul> <li>Define the following terms as used in leveling.</li> <li>i) Datum surface</li> <li>ii) Bench mark</li> <li>iii) Level surface</li> <li>iv) Reduced level</li> <li>v) Back sight</li> <li>vi) Change point</li> </ul>	(6 marks)	
b)	<ul><li>(i) With the aid of a sketch, illustrate the construction of a dumpy level.</li><li>(ii) State the basic requirement of a dumpy level.</li></ul>	(11 marks)	
Question Four (20 marks)			
a)	<ul><li>The following readings were obtained with a leveling staff.</li><li>i) Draw up a level book page and reduce the levels by height of collimation method.</li><li>ii) Apply arithmetical checks.</li></ul>		
	0.683, 1.109, 1.838, 3.399, 3.877,		
	0.451, 1.405, 1.896, 2.676 (BM 31.126m),		

3.478, 3.999, 1.834, 0.649, 1.706

	The instrument was shifted after the fifth and eleventh readings.	(20 marks)	
Question Five (20 marks)			
a)	<ul> <li>Define the following terms as used in chain surveying.</li> <li>i) Offset areas</li> <li>ii) Proof lines</li> <li>iii) Base line</li> <li>iv) Tie line</li> <li>v) Survey line</li> </ul>	(5 marks)	
b)	Explain briefly the vertical control procedure in the direct method of contouring.	(7 marks)	
C)	Define the following terms: i) Contour line ii) Vertical interval iii) Horizontal equivalent.	(3 marks)	
d)	State FIVE sources of errors in leveling.	(5 marks)	