



**FACULTY OF ENGINEERING AND THE ENVIRONMENT**  
**BACHELOR OF SCIENCE (HONORS) DEGREE IN GEOMATICS AND SURVEYING**

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**CADASTRAL SURVEYING**

**MODULE CODE: ESG 3206**

**SEASONAL EXAMINATIONS JUNE 2024**

**DURATION: 3 HOURS**

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**EXAMINER: O. MUROMO**

**INSTRUCTIONS**

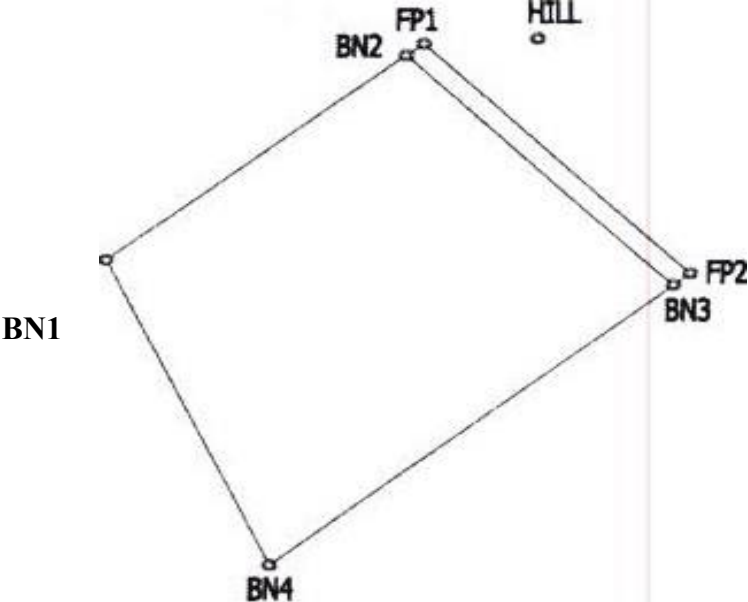
1. ANSWER **ALL** QUESTIONS
2. SCIENTIFIC CALCULATORS MAY BE USED

<b>1</b>			<b>LAND TENURE (TOTAL 25 MARKS)</b>	
	a)	(i)	Define the term Land Tenure	2
		(ii)	Explain the importance of accurate land surveys in establishing secure land tenure rights.	6
	b)		Analyze the challenges considerations involved in areas with customary land tenure.	8
	c)		Describe the following forms of the land tenure that are formally recognized in Zimbabwe;	
		(i)	Statutory tenure	3
		(ii)	Freehold tenure	3
		(iii)	Leasehold tenure	3
<b>2</b>			<b>LAND SURVEY REGULATIONS (TOTAL 25 MARKS)</b>	
	a)		Describe the required contents of a field book deposited as part of the survey records	6
	b)		Using sketches where necessary, explain what is meant by the following terms in the context of the Land Survey (General) Regulations 1979.	
		(i)	Indicatory beacon	5
		(ii)	Cairn	5
		(iii)	Centre mark	4
	c)		What type of beacon would you place in the survey of a piece of land more than 200 hectares in extent?	5
<b>3</b>			<b>BEACONS AND BOUNDARIES (TOTAL 25 MARKS)</b>	
	a)	(i)	Differentiate between Rectilinear and Curvilinear boundaries	5
		(ii)	Describe the most common alternatives for demarcating boundaries.	10
	b)		Discuss the concept of beacons and boundaries as it relates to Zimbabwe. Your answer must include mention of the types of boundaries and their relevance to cadastral surveying in Zimbabwe.	10

4		<b>COMPARISON SKETCH (TOTAL 25 MARKS)</b>
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		<p>The New Hope Farm was surveyed in 1938 and the owner at that time is known to have fenced it immediately. In the course of subdividing the farm, you have found and surveyed beacons BN I and BN4 and also the working station hill. You are unable to find BN2 and BN3, but while searching you survey fence posts FP1 and FP2 which are long established durably constructed posts. You are also able to sight from FP2 to FP1 and confirm that the fence is on line between the fence posts. See Figure I.</p>
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Figure 1.



Using the following information.

Old survey, local system (English Feet)

name	Y	x
BNI	+16870.94	+ 12677.38
BN2	+7030.51	+ 5674.54
BN3	+197.58	+ 14828.16
	+ 13232.12	+ 24517.01
hill	+3726.47	+5805.62

You have already taken out the following joins on the old survey.

Hill - BNI 62.24.00 14832.34  
 -BN4 92.16.19 3306.64  
 - BN3 338.38.19 9688.10  
 - BN4 26.55.52 20987.46

BNI - BN2 234.33.46 12077.82  
 -BN3 277.21.01 16811.51  
 -BN4 342.54.56 12386.20

New Survey , Metres

	1.0310	
Name	Y	x
Const	+0.00	+ 1960 000.00
BNI	- 4 715.92	+ 4 218.36
BN4	-6 150.01	+7 710.1 1
FPI	-7 510.04	+1 816.78
FP2	_9 846.44	+4 406.19
hill	-8 513.71	+1 766.78

			Note: conversion from English feet to meters = $\times 0.304799472$ scale factor and sea level correction for the area = -o. 139	
	a)	(i)	Confirm whether BIN I, BN4 and hill are acceptable according to the land survey regulations.	10
		(ii)	Calculate a position for replacing BN2.	5
		(iii)	Check this position.	5
	b)		Should the beacons BN2 and BN3 be replaced or are there any grounds for adopting the line between the found fence posts as the North Eastern boundary of New Hope Farm? Discuss.	5

**-END OF PAPER-**