GWANDA STATE UNIVERSITY

FACULTY OF ENGINEERING AND THE ENVIRONMENT

DEPARTMENT OF GEOMATICS AND SURVEYING

SURVEY I

EGS 1108

Examination Paper

Semester I 2023

This examination paper consists of 3 pages

Time Allowed: **3 hours**

Total Marks: 100

Examiner's Name: Mr. V Mlilo

INSTRUCTIONS

1. *Answer **ALL** Questions in chronological order.*
2. *Scientific Calculators may be used.*
3. *Programmable calculators are **not** allowed*

1	a		State any three branches within the geomatics field and describe in detail what they entail.	8
	b		Give the three types of errors in measurements and examples of ways you can eliminate or minimize the error effects in surveying.	9
	c		Explain how calibration of survey equipment is used to eliminate errors. Use two survey equipment as examples.	3
2	a		Briefly discuss any five distance measuring methods/techniques.	10
	b		What is magnetic declination and what are the different types of variation(s) in declination?	2
	c		Compare and contrast between the following:	
		i	Rise and Fall method and Height of Collimation method	2
		ii	Closed and Open traverse.	2
		iii	Plane survey and Geodetic survey.	2
		iv	Triangulation and Trilateration.	2
3	a		Define the following levelling terms:	
		i	Horizontal line.	2
		ii	Datum.	2
		iii	Benchmark.	2
		iv	Parallax.	2
		v	Station.	2
	b		With the aid well labelled diagram, describe how you would carry out the two-peg test on an automatic level.	10
4	a		Describe briefly the various methods of leveling.	10
	b		It was required to ascertain the elevations of two points A and B, a line of levels was run from A to B. The levelling was then continued to B.M. of elevation 100m. The readings obtained are shown. Obtain Reduced Levels of A and B. Use any method. Apply usual checks.	
		i		10

St No	B.S.	I.S.	F.S.	R.L.	Remarks
1	3.90				A
2	1.450				
3	3.95				
4		2.35			B
5	3.35		0.85		
6	3.50		2.95		
7	3.90		3.10		
8			2.50	100	BM

5	a		Explain (with the aid of a diagram) the plane survey method of:	
		i	Intersection.	2
		ii	Resection.	2
	b	i	Define a contour.	1
		ii	Write an exhaustive account on the characteristics of contours.	4
		iii	Explain how contour maps are used.	6
	c		Briefly discuss Gauss Conformal as a coordinate system used in surveying and mapping within the southern Africa region.	5

END OF PAPER