



GWANDA STATE UNIVERSITY

FACULTY OF ENGINEERING AND ENVIRONMENT

DEPARTMENT OF GEOMATICS AND SURVEYING

GEOGRAPHIC INFORMATION SYSTEMS AND REMOTE SENSING

EGS1112

Final Examination Paper

May 2023

This examination paper consists of 2 pages

Time Allowed: 3 hours

Total Marks: 100

Examiner's Name: Mr A Sibanda

INSTRUCTIONS

Answer ALL questions in chronological order

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QUESTION 1: Principles of Geographic Information Systems and Science				
[25]				
	a	i)	Distinguish between Geographic Information Systems (GIS) and Geographic Information Science (GISc)	4
		ii)	Identify and describe five (5) functional elements of a GIS. Include examples and illustrations in your answer.	10
		iii)	Describe five (5) real applications of Geographic Information System (GIS)	5
	b		What are GIS resources? Explain your answer	6
QUESTION 2: Geographic representations and data models				[25]
	a		With the aid of clear diagrams demonstrate your understanding of the following GIS data models:	
		i)	Raster data model	5
		ii)	Vector data model	5
	b	i)	What is geocoding?	2
		ii)	Describe three methods of geocoding	3
	c		With the aid of clear diagrams, describe and explain map projections	10
QUESTION 3: Introduction to Remote Sensing (RS)				[25]
	a		What is remote sensing?	2
	b		Using practical examples, explain the importance of remote sensing	5
	c		With the aid of clear diagrams, describe the following terms about electromagnetic waves:	
		i)	Wavelength	5
		ii)	Frequency	5
		iii)	Electromagnetic spectrum	5
QUESTION 4: Components for Remote Sensing (RS) and Imagery Interpretation				[25]
	a	i)	What is electromagnetic radiation?	4
		ii)	Explain how electromagnetic radiation is used in remote sensing	5
	b		With the aid of examples, distinguish between passive and active sensors	4
	c	i)	Describe and explain the functioning of the satellite platform in remote sensing	6
		ii)	What are the advantages of the satellites over other sensor-carrying platforms?	6

END OF EXAMINATION