



FACULTY	AGRICULTURE, ENGINEERING AND NATURAL SCIENCES		
QUALIFICATION	B.A. GEOGRAPHY AND ENVIRONMENTAL STUDIES (HONOURS)		
DEPARTMENT	ENVIRONMENTAL SCIENCE		
SUBJECT	REMOTE SENSING		
SUBJECT CODE	HGHR3801		
DATE	MAY / JUNE 2022		
DURATION	2 HOURS	MARKS	70

UNIVERSITY OF NAMIBIA EXAMINATIONS: SUPPLEMENTARY EXAMINATION AND MEMO

Examiner: P.N. HAINONGO, PhD (University of Namibia)

Internal Moderator: M. HIPONDOKA, PhD (University of Namibia)

External Moderator: Prof MD Simatele (University of Witwatersrand)

This paper consists of 7 pages including this cover page.

Section A- Compulsory (35 marks)

Section B- Answer two of the four questions only, one for 25 and one for 10 with a total mark of 35

Instructions.

1. Work in an orderly manner and present your work neat.
2. While most of the marks will be awarded for content, candidates are encouraged to use their own ideas to promote critical thinking and demonstrate own understanding of what is being asked for.
3. Number your questions correctly and clearly.
4. Answer all the questions in Sections A and answer only TWO (2) questions in Section B.

SECTION A: Answer all questions in this section

1. Briefly explain what remote sensing is. [2]
2. In your own words define what satellite orbits are. [2]
3. Differentiate between Passive and Active sensors in Remote Sensing. In your answer help us to understand better by citing examples for each product. [5]
4. What index does the equation $NIR - Red / NIR + Red$ represents and why is it important in Remote Sensing [4]
5. Namibia is one of the countries that depend on agriculture for the livelihood of its people. Identify five agricultural activities where Remote Sensing can be applied. [5]
6. Briefly describe the extent to which satellite imagery can be replaced or supplemented by aerial photography? [4]
7. Differentiate between spatial and spectral resolution of images. Provide examples for each one of them. [5]
8. Briefly explain why we need to calculate accuracy assessment after image classifications. [3]
9. In your own words summarize what is on-screen digitizing and elaborate on its importance during object based analysis (OBIA) especially when using ortho-photos as a source of data. [5]

SECTION B: Answer only two questions from this section, one question with [25] marks and another with [10] marks.

10. a) You are working for the Roads Authority (RA) and your supervisor assign you to update the road networks based on what was recently upgraded on the ground at the National level. Applying your Remote Sensing skills, systematically explain how you would go about carrying out such a project. In your explanation indicate the appropriate Remote Sensing (RS) products you need to use and how to acquire such products. Provide examples where possible [25]

OR

b) In your own words, discuss what vegetation indices are and their application. Furthermore, state what they are suitable for and inscribe their formulas. Provide four examples [25]

11. a) Remote Sensing data are classified based on their spatial resolutions. Discuss the two resolution brands by highlighting the ones suitable for mapping large scale and small scale areas. Provide valid reasons for your citations and possible examples. [10]

OR

b) Discuss and explain the significance behind integrating RS with GIS. [10]