

**UNIVERSITY OF KWAZULU-NATAL  
WESTVILLE/HOWARD COLLEGE CAMPUS  
EXAMINATION: SUPPLEMENTARY 2011**

**SCHOOL: ENVIRONMENTAL SCIENCES  
LEVEL: II  
MODULE: GEOGRAPHIC INFORMATION SYSTEMS  
CODE: ENVS211**

**DURATION: 3 HOURS**

**TOTAL MARKS: 300**

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**INTERNAL EXAMINERS: DR H K WATSON  
MR N NGETAR  
INTERNAL MODERATOR: DR J ODINDI**

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**INSTRUCTIONS: SECTION A – ANSWER ALL QUESTIONS (100 marks)  
SECTION B – ANSWER TWO QUESTIONS (200 marks)**

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**SECTION A: COMPULSORY - ANSWER ALL QUESTIONS (100 marks)**

1. Explain any six of the following:

- Topology
- Ellipsoid
- Cartesian coordinates
- Geoid
- Geographic coordinates
- Datum
- Adjacency
- Network analysis
- False colour (in remote sensing)

(30)

2. Discuss **Four** types of vector overlay analysis.

(20)

3. Define map projections and discuss any two types of maps projections used in South Africa. Include the advantages and disadvantages of each projection type. (30)

4. Discuss **Four** types of resolutions used in remote sensing and their importance in data capture. (20)

**Total: 100 marks**

**SECTION B: ANSWER TWO QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS**

1. Differentiate between vector and raster data models and discuss their advantages and disadvantages in GIS. Use sketched diagrams to illustrate your answer where necessary. (100)
2. Not all satellite images are clear enough for analysis. Discuss the various ways of enhancing satellite images before analysis. (100)
3. Discuss GIS as a spatial decision support system and show how it differs from other decision support systems. (100)
4. Select any application area of your choice and show how GIS is used. Include in your discussion, data capture, management, analysis and contribution to decision making. (100)
5. Differentiate between data quality and accuracy. Discuss the different ways of describing data accuracy in GIS. (100)

**Total: 200 marks**