

**GIS 221 INTRODUCTORY GIS**  
**SECOND SEMESTER TEST**

18 September 2008

Time: 50 min

**1. ACQUIRING DATA**

1.1 Explain what is meant by the

1. completeness
2. compatibility and
3. consistency of a data set

(3)

1.2 Illustrate the data stream by means of a flow chart.

(16)

1.3 Name the encoding method that you will use to capture data for the use in a GIS under the following circumstances. Also discuss the quality of the data sets.

1. Analogue Maps (but you do not have a digitising tablet)
2. Statistical data (but you do not have a scanner)
3. Data as captured with a GPS by a land surveyor
4. Satellite images in a digital format

(6)

**2. ANALYSING DATA**

2.1 Define the following terminology:

1. Spatial Operation
2. Multiple Layer Spatial Operation
3. Modeling

(3)

2.2 The following research question and project criteria are given to you.

**Research Question:** Where is the best location for the building of a new holiday resort?

**Project Criteria:** The best location for a new holiday resort is where the following conditions are met:

- It must be further than 10km away from all industrial properties or refuse sites.
- It must be on a property that is for sale and that is vacant and within a distance of 3 km from a tourist attraction.
- The underlying geology of the proposed property must not be dolomite

Data sets given to you are as follows:

Spatial Data	Attribute Data
Properties	Land Use For sale
Tourist Attractions	Unique ID
Geology	Unique ID

Draw an analysis model for **EACH** of the criteria to illustrate the process that will be followed to analyse the data.

(9)

2.3 Name and illustrate the boolean operators that can be used to combine queries when doing **polygon on polygon overlays**. Give a practical example of when you will use each boolean operator.

(9)

2.4 Name the advanced analysis method that you will perform if you want to:

1. determine the shortest route from one point to another
2. determine the shortest route between more than two points
3. estimate the values of properties at unsampled points
4. calculate the steepness of an area

(4)

**Total 50**