DEPARTMENT OF GEOGRAPHY, GEOINFORMATICS & METEOROLOGY
FACULTY OF SCIENCE
GGY283 INTRODUCTORY GIS
FIRST SEMESTER TEST

16 MAY 2005   TIME: 1 HOUR

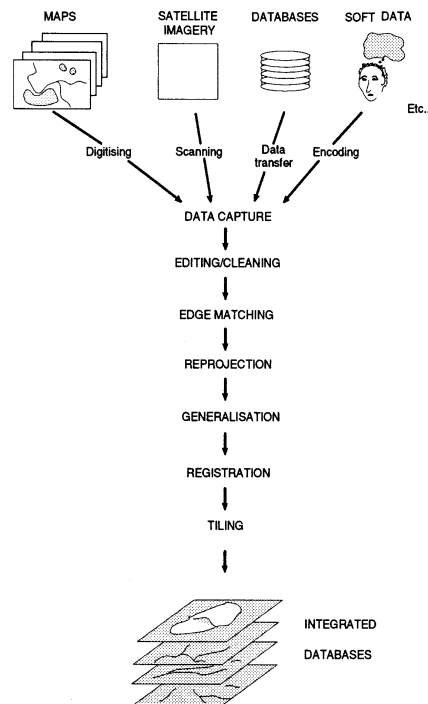### 1. <u>ACUIRING THE DATA</u>

1.1 Define the Data Stream

The process of getting data into the computer is called data encoding. The whole
   process of data acquisition, data encoding and data editing is called the data
   stream.

(3)

1.2 Explain the Data Stream diagrammatically. (Draw a diagram/picture!)

(16)

1.3 Define the following terminology:
- Accuracy **-** is the faithfulness with which a spatial entity is
  represented
- Precision - is the degree of exactness used to record the location
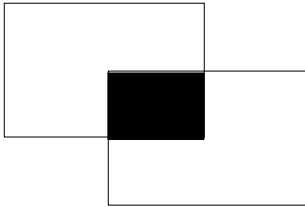 of the spatial feature. A distance measured to the nearest 10

decimal places is more precise than a distance measured to 2
decimal places
- Data Quality - is an indication of how good a data set is. It is also
used to indicate data free from errors and other problems

(3)

2. <u>ANALYSING THE DATA</u>

2.1 Name and illustrate the use of boolean operators in a GIS to combine
multiple variables queries. Also give a practical example of when you will use
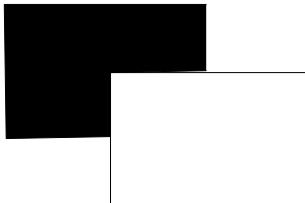each boolean operator.   (15)

AND
E.g. which properties have a
residential zoning **and** an
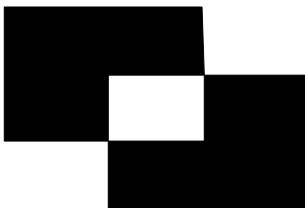area of more than 2000
square meters?

OR
E.g. Which properties have a
residential zoning **or** have an
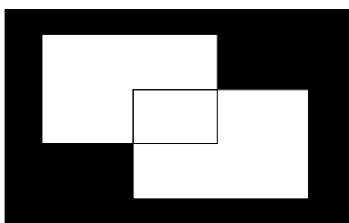area of more than 2000 square
meters?

NOT

E.g. Which properties have an
area of more than 2000 square
meters but is **not** zoned for
residential?

XOR
E.g. Which properties have
either a residential zoning or
have an area of more than 2000
square meters?

NOR
E.g. What properties are not
zoned for residential and do not
have an area of more than 2000
square meters?

2.2 Define an Analysis model and name the steps to follow to develop an analysis model.
Analysis models are a schematic representation of the procedure to follow when analysing data. It develops a conceptual way of thinking and understanding of the analysis process
The procedure for the development of an analysis model is as follows:
 1. Identify the spatial data and attribute data sets that are required.
2. Use clear logic and natural language to develop the process of moving from the available data to a solution.
3. Set up a flow chart with steps to graphically represent the above process.
4. Annotate this flow chart with the commands necessary to perform these operations within the GIS you are using.

(5)

2.3 Define the following terminology:
- Buffer - the growth of a zone around an entity (area of interest)
- Choropleth map - Choropleth maps are generated by doing a classification on your attribute data. Classification is a method whereby attribute data is grouped into classes and displayed on a map to see patterns or trends in the attribute data.
- Topology - With topology the relative locations of all the features stay the same. No matter how you stretch or bend the features the line is stil intersecting the polygon with two points on each side.

(3)

3. **COMMUNICATING THE RESULTS**

3.1 Name the map design elements that must added to all map layouts.
1. A frame of reference, (Norht arrow, scale)
2. the projection used,
3. the features to be mapped,
4. the symbolism used and (Colours and symbols)
5. the annotation used (Title subtitle and legend)

(5)

TOTAL/TOTAAL [50]