

PHYSICS PRACTICAL SHEETS

VARIETY
PRODUCT

Date:

CAMPUS

Class:

Experiment No.

Roll No.:

Group:

Shift:

Sub.:

Object of the Experiment (Block Letter)

Set:

1. What is vector analysis? why geoprocessing is important?
Vector analysis uses the geometric objects of point, line and polygon. The accuracy of analysis result depends upon the accuracy of these objects in terms of location and shape. Topology can also be the factor for some vector analysis such as buffering and overlay.

Geoprocessing is a GIS operation used to manipulate GIS data. A typical geoprocessing operation takes an input dataset, performs an operation on the dataset and return the result of an operation as an output dataset. Geoprocessing is a framework and set of tools for processing geographic and related data. It is used to automate GIS tasks and for modeling and analysis. A typical geoprocessing tool performs an operation on datasets such as feature class, raster, or table and creates a resulting output dataset.

2. Define buffering with its applications.

Buffering is a GIS operation that creates zones consisting of an area within a specified distance of selected feature. Based on the concept of proximity, buffering creates two areas one area that is within a specified distance of selected feature and another area that is beyond.

Application

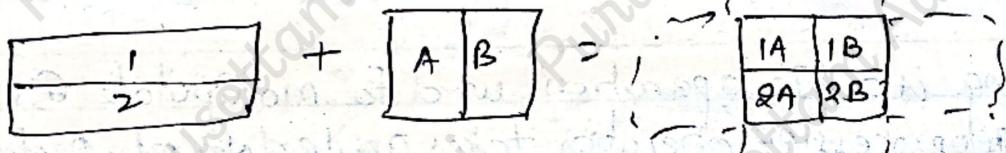
- (i) used in planning or regulatory purpose, as buffer zone is often treated as protected zone.
- (ii) used in conflict resolution by treating buffer zone as neutral zone.
- (iii) used as object for analysis it is used as sampling method.

3. Define overlay and list out different methods.

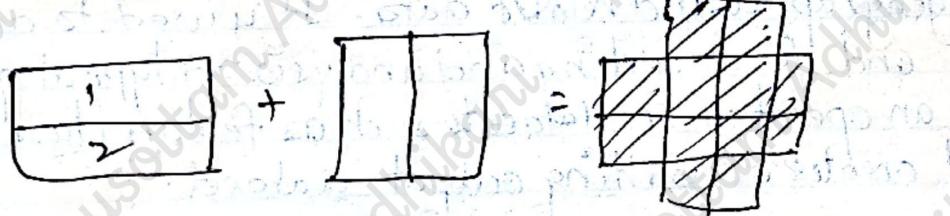
An overlay operation combines the geometric and attributes of two features from the input layer and create the output. Each feature on the o/p contains a combination of attributes from both layers and thus combination differs from its neighbours.

Methods

i) An overlay method/operation is called intersect if it uses AND connector



ii) An overlay operation is called union if it uses the OR connector



iii) An overlay operation that uses XOR connector is symmetrical difference



iv) An overlay operation is called identity or minus if it uses following expression : $[(i/payer) \text{ AND } (\text{identity})]$ OR $(i/payer)$



4. Explain different types of vector overlay operations.
See model question for answer.

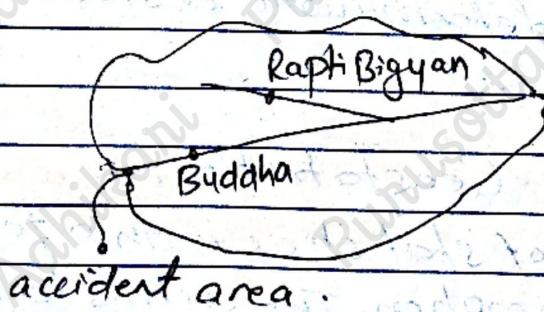
5. Describe the steps to perform overlay analysis.

- I) Define problem
- II) Break problem into submodels
- III) Determine significant layer
- IV) Reclassify or transform data with a layer
- V) weight up layer
- VI) combine layers
- VII) select best location
- VIII) Analyze

6. Explain n/w analysis.

N/W analysis is commonly used for the analysis of moving resources from one location to another through a set of interconnected features. It includes determination of optimum paths using specified decision rules. The decision rules are likely based on minimum time or distance.

e.g.



If there are two hospitals located at Cohanhi, Dang. If the accident happens at narayanpur area then it will be better to take patient to the buddha hospital if the condition is critical.

6. for raster, vector analysis see model questions and youtube video because it needs explanation how to perform ~~vector~~ Raster analysis.

7. Short notes on spatial interpolation techniques.

Spatial Interpolation is the process of using points with known values to estimate values at other points. In GIS applications, it is typically applied to a raster with estimates made for all cells. So, it is a means of creating surface data from sample points. points with known values are control point

Types :-

- (I) It can be global or local
- (II) It can be exact or inexact
- (III) It can be deterministic or stochastic

8. Short notes on Geostatistics :-

It is the study of statistics with a focus on spatial and temporal information. The aim is to model and find patterns of geographic phenomena.

The field of geostatistics covers a wide range of spatial statistical topics such as:-

- ⑩ semi-varioogram to characterize the spatial pattern in data
- ⑪ kriging for spatial prediction
- ⑫ Standard error to measure uncertainty about unknown unsampled values.

e.g.: - what is forecasted amount of soil moisture at unsampled locations?

Q- Define GIS modeling with its Role.

A model is a simplified representation of a phenomena or a system. It may be descriptive or prescriptive. It may be deterministic or stochastic. It may be static or dynamic.

Roles

- ① A GIS tool that can process, display and integrate different data source
- ② It can be vector based or raster based
- iii) It provides algorithm to convert data
- iv) It helps to link GIS data with other program.
- v) It can validate & can be generally accepted

Thank you

Best wish for your exam.



support me at



9810867824