

**ASSOCIATION OF CANADA LANDS SURVEYORS - BOARD OF EXAMINERS
WESTERN CANADIAN BOARD OF EXAMINERS FOR LAND SURVEYORS
ATLANTIC PROVINCES BOARD OF EXAMINERS FOR LAND SURVEYORS**

SCHEDULE I / ITEM 6

March 2005

MAP PROJECTIONS AND CARTOGRAPHY

Note: This examination consists of 10 questions on 1 page.

Marks

Q. No

Time: 3 hours

Value Earned

1	Different countries use different map projections. How does this fact relate to the position and shape of countries?	10	
2	Knowing that the scale factor for the central meridian of a 6° TM (Transverse Mercator) map is 0.9996 while it is 0.9999 for a 3° TM map, which map allows for the more precise distance measurements without mathematical correction (both projections are secant)? Explain why.	10	
3	Explain the complete mapping process that takes place when one measures very precisely the position of several points on the Earth, produces a map with these data, plans the building of a new infrastructure (e.g. a bridge), and goes back to the field to implement this new infrastructure. Identify the information needed and the data manipulation required.	16	
4	Describe the National Topographic System used to index map sheets in Canada.	4	
5	Several GIS packages offer a function called "address matching" or "Geocoding". Define what it is and discuss its spatial precision with regard to planimetric position and in consideration of altimetric position.	10	
6	What are the characteristics of the UTM map projection used by the federal government for topographic maps? (type of projection and constants)	5	
7	What are "conformal" and "equivalent" maps? There also exist hybrid projections. Define what a hybrid projection is and what an aphyllactic projection is.	10	
8	What is map generalization? What is it used for? Describe 5 map generalization operators with examples. Why do we hear "every map lies"?	20	
9	What is a Geospatial Data Infrastructure? Give one example.	8	
10	Precisely speaking, is the scale a constant value in a 1:50,000 map? Explain.	7	
	Total Marks:	100	