**CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS**
**ATLANTIC PROVINCES BOARD OF EXAMINERS FOR LAND SURVEYORS**

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**SCHEDULE I / ITEM 6** **October 2006**

**MAP PROJECTIONS AND CARTOGRAPHY**

**Note: This examination consists of 7 questions on 1 page.** **Marks**

| Q. No | Time: 3 hours | Value | Earned |
|---|---|---|---|
| 1 | What are metadata? Give 5 examples. How can we use them to help assessing the quality of maps? | 15 | |
| 2 | Explain the complete map making process from the initial field measurements to geodetic operations, map projection and map drawing. Inversely, explain the complete process when one wants to precisely implement in the field a new infrastructure that was first planned and drawn on the map. | 20 | |
| 3 | On a 1:50 000 Canadian Topographic Map, when measuring a long distance along the central meridian, is the result longer or shorter than it is in the field? By how much? Is it the same for a long distance measured East-West? Explain. | 10 | |
| 4 | a. What is map generalization?<br>b. What is it used for?<br>c. Describe 5 map generalization operators with examples.<br>d. Why do we hear "every map lies"? | 20 | |
| 5 | Several GIS packages offer a function called "address matching" or "Geocoding". Knowing that you are in the country, that you use a 2D map and that houses are not distributed in a regular pattern along the roads, what can you say about the spatial precision of positioning an address on such map? Does it relate to the precision of the map projection? | 15 | |
| 6 | 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 at the secant meridians without mathematical correction? Explain why. | 5 | |
| 7 | Considering the shape and size of British Columbia, would you choose a Transverse Cylindrical projection tangent to Vancouver, a Polar Azimuthal projection or a Polar Conic projection in order to have the highest precision (smallest distortions)? Explain your answer with drawings and map projection criteria. | 15 | |
| | **Total Marks:** | 100 | |