

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

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**SCHEDULE I / ITEM 6  
MAP PROJECTIONS AND CARTOGRAPHY**

**March 2002**

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

**Marks**

**Q. No**

**Time: 3 hours**

**Value   Earned**

1	On a UTM projection, calculate the meridian convergence for a point with latitude 50° 27' 12" N and longitude 68° 18' 29" W. Would this convergence change if there were a 3° Transverse Mercator zone in the area with the same central meridian as that used for the UTM? If so, why? What would be the longitude of a point with the same numeric value for the convergence, but opposite algebraic sign?	15	
2	Two of the major divisions or classifications of map projections in common use are "conformal" and "equivalent". Define these two terms. Which of the two types is most commonly used in surveying operations, and why?	10	
3	The basic printing processes of letterpress, engraving and lithography operate in different ways to produce a surface from which ink may be transferred to paper. With the aid of diagrams, explain these different processes.	10	
4	Define a) vector file b) mosaicing c) orthophotographs d) tif format e) analogue scribing and masking methods f) selective omission g) displacement h) combination i) exaggeration j) simplification	20	
5	Explain, using diagrams, the concept of line scale factor. Why is it important for a surveyor to take this into account, and under what circumstances can he/she ignore it?  What is the line scale factor of a line lying on the central meridian of a UTM zone?	10	
6	You as a surveyor are contracted by a GIS company to provide advice for the creation of a GIS cadastral mapping project – layers of topography, water, vegetation, property ownership, easements, etc are to be integrated with assessment values and planning information. Outline what you see as the role of the surveyor in this project, indicating which parts of the project ( if any ) would be the surveyor's sole and legal responsibility. Indicate what map projection, scale, software and datum you as a surveyor would prefer to see used, and why.	25	
7	For multi-colour work, the different printed colours have to have an angular separation, in order to avoid the "moiré effect". With the aid of diagrams, explain this statement.	10	
<b>Total Marks:</b>		100	

