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 II / ITEM 1 GEODETIC POSITIONING

February 2001 (1990 Regulations) (Closed Book)

This examination consists of 4 questions on 1 page

Q. No. <u>Time: 3 hours</u> <u>Marks</u>

1	Effect of gravity field on geodetic measurements (State 'Yes' or 'No' and justify your answers)	
	 (a) Does the gravity field affect GPS measurements? (b) Can GPS measurements be used to determine the geoid? (c) Why and when is the geoid important? (d) How accurate is the geoid in Canada currently? (e) Is the knowledge of deflections of the vertical important for GPS observations? (f) Is the knowledge of gravity important for levelling observations? (g) How can gravity be measured? 	5 5 5 5 5 5
2	DGPS Surveying	
	A region is surveyed in February 2001 with differential GPS. The inter-station distances vary between 100 and 150 km. Describe the equipment characteristics, observables, observation time, data post-processing methods and other parameters and procedures required to obtain a three-dimensional accuracy of 10 cm (65% confidence level).	20
3	Geodetic Reference Systems	
	(a) A precise survey is required on Canada Lands. The results must be given in NAD83. You decide to conduct the survey with GPS. What are the steps required to obtain the coordinates in NAD83.(b) Describe the conceptual differences between NAD27 and NAD83	10 10
4	Positioning Systems	
	(a) Describe how the frequency of a ground-based RF positioning system affects its range and accuracy	5
	(b) Describe the concepts of acoustic positioning systems and how they are mostly used.	5
	(c) Are RF positioning systems affected by rain?(d) Enumerate and describe the operating concepts of two shore-based RF systems	5
	used for offshore positioning during the 80s	10

Total Marks: 100