

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

**SCHEDULE II / ITEM 2
HYDROGRAPHIC SURVEYING AND OCEANOGRAPHY**

March 2008

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

Marks

Q. No

Time: 3 hours

Value Earned

1	Define in details the following terms: a) fairway b) benthos c) compass rose d) isogonic line e) Beauford Wind Scale f) tidal current g) cavitation h) seiche i) thermocline j) limnology k) draft (or draught) l) tide staff m) cleared depth n) multiple echo o) leadline	30	
2	Describe the operation of a single beam echo sounder, naming and sketching each component.	10	
3	a) Describe the process of calibrating a single beam echo sounder. b) In addition to the earth-sun-moon interactions, what other factors may affect the tidal range at the specific location?	5 5	
4	Name and describe the major sources of errors to be taken into consideration when obtaining a depth by single-beam echo sounder. How do you compensate for each error?	10	
5	a) What is the difference between a sounding datum and a chart datum? b) What are the advantages and disadvantages of using a multibeam echo sounding system rather than a single beam echo sounder?	5 5	
6	You are conducting a hydrographic survey in a shoal infested area in Labrador. A survey was conducted by the U.S. Navy 80 years ago and you are re-examining a pinnacle that was determined to have at least a depth of 7 fathoms 3 feet. You determine the depth to be 12.1 metres. What may be the causes of the discrepancy between the two surveys?	10	
7	A detailed large scale hydrographic survey is required for the construction of a pier to be used mainly for loading/offloading container vessels and bulk carriers. The area of coverage is rectangular in shape approximately 1500 m x 1000 m. Your company is going to submit a proposal (bid) to conduct the survey and you are part of a team preparing the submission. Compile a list of questions/issues that you would address in order to prepare the documentation.	20	
	Total Marks:	100	