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

SCHEDULE II / ITEM 2 — March 2007
HYDROGRAPHIC SURVEYING AND OCEANOGRAPHY

Examination Results for Candidate No.:

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

Q. No Time: 3 hours — Value — Earned

Q. No		Value	Earned
1	Define each of the following terms: a) cavitation b) avulsion c) bifurcation d) escarpment (or sea scarp) e) foul bottom (or foul ground) f) draft (or draught) g) isobathytherm h) groin (or groyne) i) hachures j) kelp k) limnology l) quay m) seiche n) strand o) thermocline	30	
2	Describe the factors that affect the speed of sound of an underwater acoustic wave in water. Why is it critical that a hydrographic surveyor know the speed of sound in water?	6 4	
3	Describe in detail the forces and factors that affect the strength and extent of tidal streams.	10	
4	During the course of a hydrographic survey, it is often required to establish both a sounding datum and subsequently a chart datum. Explain each and describe why this is so.	10	
5	Describe the operation of a single beam echo sounder, naming and sketching each component.	10	
6	Normally in taking water level measurements over medium-long periods both an automatic water level gauge and a tide staff are installed. Why? Explain harmonic and non-harmonic tidal constituents.	5 5	
7	During the course of a hydrographic survey, a pinnacle was discovered in a shipping lane. During a quality control process it is determined that the least depth obtained by lead line was 4.6 metres and the least depth obtained using a 30 KHz single-beam echo sounder was 4.1 metres. Explain why this discrepancy may occur. What would you do to resolve the difference and why?	15 5	
	Total Marks:	100	