

CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS

C12 - HYDROGRAPHIC SURVEYING		<u>March 2023</u>	
Note: This examination consists of 11 questions on 1 page.		Marks	
<u>Q. No</u>	<u>Time: 3 hours</u>	<u>Value</u>	<u>Earned</u>
1	What is IHO S-44 and what is it used for?	10	
2	You are tasked to conduct dredging surveys to determine volume removed and to ensure minimum depths met. Describe how you would conduct these operations, what equipment you would use, what datums and what specifications you would try to meet.	20	
3	Describe the role of the following vertical datums: Chart Datum, Survey (or Sounding) Datum, MSL, LAT, and HAT.	10	
4	With the help of a diagram, describe the relationship between ellipsoidal, geoidal and tidal vertical datums, as used in hydrographic operations. Explain how each is derived, what they are used for, and how they are related to each other.	10	
5	With the help of diagrams, describe the tide generating forces.	10	
6	What is a cross check line and what is it used for?	5	
7	Explain how uncertainty in sound velocity will affect uncertainty in a soundings depth.	5	
8	Describe two methods for measuring sound velocity.	10	
9	What multibeam setting would you change to help compensate for increased vessel speed?	5	
10	What is the relationship between transducer size and its beamwidth?	5	
11	Why is it necessary to apply pitch and roll observations to narrow-angle single beam transducers and not wide-angle single beam transducers, under normal survey conditions? Use a diagram to explain your answer.	10	
		100	