

**ASSOCIATION OF CANADA LANDS SURVEYORS  
BOARD OF EXAMINERS**

**PROFESSIONAL EXAMS - ITEM 1  
ACTS AND REGULATIONS RELATING TO SURVEYS OF CANADA LANDS**

**October 2010**

**(March 18, 1999 Regulations)**

**Notice to Candidates:**

**This examination is based on the General Instructions for Surveys, e-Edition. Although programmable calculators may be used, candidates must show all formulae used, the substitution of values into them, and any intermediate values to 2 more significant figures than warranted for the answer. Otherwise, full marks may not be awarded even though the answer is numerically correct.**

This examination consists of **11** questions on **3** pages.

<u>Q. No</u>	<u>Time: 3 hours</u>	<u>Marks</u>													
		<u>Value</u>	<u>Earned</u>												
1.	Give the complete Canada Oil and Gas Land Regulations designation for the unit(s) immediately south of Unit B, Section 11, Grid Area 68°10', 132°30'.	5													
2.	The horizontal distance between two control monuments on meridian of longitude 135° in the City of Whitehorse is measured as 4,210.667 metres. The mean elevation scale factor for the two monuments is 0.99948. What is the UTM grid distance for the line?	6													
3.	The Ramsill Tidaw exploratory well is situated in Unit P, Section 11, Grid Area 69°20', 133°30'. The grid area has the following UTM coordinates in metres North and East respectively: <table style="margin-left: 20px; border: none;"> <tr> <td>NE corner</td> <td>7,692,076.67</td> <td>559,079.39</td> </tr> <tr> <td>NW corner</td> <td>7,691,855.57</td> <td>549,234.12</td> </tr> <tr> <td>SE corner</td> <td>7,673,496.18</td> <td>559,534.38</td> </tr> <tr> <td>SW corner</td> <td>7,673,273.62</td> <td>549,613.28</td> </tr> </table> Calculate the UTM coordinates for the northeast corner of Unit P.	NE corner	7,692,076.67	559,079.39	NW corner	7,691,855.57	549,234.12	SE corner	7,673,496.18	559,534.38	SW corner	7,673,273.62	549,613.28	10	
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4.	Using a single concise sentence, distinguish between the main purposes of the <i>Canada Lands Surveys Act</i> and the <i>Canada Lands Surveyors Act</i> .	5													
5.	A section of the Little Gold Creek base line in Yukon's Klondike goldfields has an official plan bearing of 4° 13' and a plan distance of 4,665.2 feet between Angles 12 and 13. The angle numbering increases in the upstream direction. The creek saw extensive claim and mining activity in the early 1900's when the base line was surveyed but has been generally considered as "mined out". The last of the early claims lapsed in the 1960's. In 2008, an experienced placer miner, Jerzy Salza, located evidence of the base line														

	<p>between Angles 12 and 13 and did some sampling of unmined bench gravels in the first tier left limit. Encouraged by excellent assay returns, he located the SAL Tier 1 Left Limit bench claim of the full size on May 1, 2010 using a hand-held GPS to establish his legal posts very close to the Tier 1 line. On May 4, 2010, he returned to the area with a former mining partner Ronald Milne, and Milne staked a second Tier 1 Left Limit bench claim MIL, also of the full size, upstream of and adjoining the SAL claim. The area staked is 47 miles from the office of the mining recorder for the Dawson Mining District.</p> <p>During the same period since 2008, geologist Harry Parsons had been working on a theory that there was a major gold vein in the bedrock underlying Little Gold Creek in the area between Angles 12 and 13. On May 2, 2010, Parsons staked out three quartz claim location lines of the full length along the base line commencing at Angle 12 and staking northerly in the direction of Angle 13. He staked the HARRY 1 to 6 claims of the full size, the odd numbered claims left of the three location lines and the even numbers to the right. He was careful in measuring his location lines at 1,495 feet and check-measured the distance from his most northerly posts to Angle 13 as 178 feet, an acceptably accurate result.</p> <p>The staking and recording of the placer and quartz claims was compliant with the legislation. Parsons was not aware of Salza and Milne's claims, and vice-versa, until the mining recorder issued the grants. On the mining recorder's suggestion, they all engaged a Canada Lands Surveyor to determine their resulting claim areas before commencing further work and expenditures.</p> <p>The CLS recommended a preliminary GPS survey of the post locations and baseline angle monuments to determine the configuration of the claims involved. He determined that Parsons' three location lines in the northerly direction staked measured 1,494.2, 1,496.1 and 1,496.6 feet respectively. His posts were all within 2.5 feet of the placer base line, which measured 4,665.72 feet between angles. He also determined that the perpendicular projection of the two bench claims, both just under the maximum allowable length, fell within the base line section containing the HARRY 3 and 4 location line.</p> <p>a) Draw a neat sketch at an appropriate scale showing the configuration of the two placer bench claims and six quartz claims in relation to the surveyed base line. For purposes of the sketch and dimensioning, assume that the quartz claim posts are exactly on the base line. Provide all known dimensions clearly on your sketch. Assume any other missing information.</p> <p>b) Using distinguishing colours or other suitable means, identify the boundaries of each of the SAL, MIL and HARRY 4 claims on your sketch.</p> <p>c) How many days did Salza have to record his SAL claim?</p> <p>d) How many days did Parsons have to record his claims?</p> <p>e) What is the earliest date that Salza could stake an additional claim in the Little Gold Creek drainage?</p> <p>f) Assuming Parsons grouped his six claims, how much eligible representation work must he complete in order to renew the claims for an additional year?</p> <p>g) If all of the other measurements and conditions noted above applied, except that the SAL claim had a location line 15 feet in excess of the maximum allowed, would your configuration for the HARRY 4 claim change? If so, indicate how with a sketch. If not, explain your reasoning.</p>	<p>8</p> <p>6</p> <p>3</p> <p>3</p> <p>3</p> <p>3</p> <p>4</p>	
6.	What single accuracy requirement must be met for the acceptability of a field survey method for determination of the location of a natural boundary of or fronting a parcel of Canada lands on a navigable lake or river?	5	
7.	What remedy is available against a contractor who has destroyed	6	

	<p>a) knowingly b) inadvertently monuments placed in an official survey?</p>		
8.	<p>For each of the situations given below, indicate whether a CLS, a provincial surveyor for that jurisdiction, or both, all having the required licences and permits, may make the survey of: (2 marks each)</p> <p>a) British Columbia Crown land for transfer to Canada for the establishment of a remote Indian reserve.</p> <p>b) a pump house site near the centre of an Indian reserve in Ontario.</p> <p>c) a maintenance garage in a National Park on its exterior boundary, where the adjoining land outside the park is unsurveyed Manitoba Crown land.</p> <p>d) a consolidation of an urban city block in Surrey BC for the Minister of Public Works for the construction of a new Canada Post Corporation sorting depot.</p> <p>e) a wellsite in the Beaufort Sea, Northwest Territories for an Alberta-chartered energy company.</p> <p>f) a private lands consolidation in Kitchener, Ontario for the new headquarters of the Assembly of First Nations.</p> <p>g) that portion of a Northwest Territories and Nunavut Mining Regulations mineral claim which unintentionally overlaps into northern British Columbia by several hundred feet.</p>	14	
9.	<p>A Canada Lands Surveyor recovers evidence of the original southeast corner of Lot 165, Group 2, Yukon Territory as follows:</p> <ul style="list-style-type: none"> <li>- faint remains of three of the original four pits</li> <li>- the fourth pit in excellent condition</li> <li>- faint remains of the original mound</li> <li>- remains of a hole and rotting wooden post butt in a position corresponding with the centre of the pits.</li> </ul> <p>He is making a survey of Lot 1009, Quad 105 D/14, the northwest corner of which is common with the above-described corner.</p> <p>He places a CLS 77 monument marked "2L165 G2, L1009 Q 105 D/14, 1986" in the centre of the hole, makes three Balsam bearing trees and places an angle iron marker post with plaque 30 cm north of the monument.</p> <p>Using authorized abbreviations, write the appropriate notation that will appear on his combined plan and field notes at this monument location. Use assumed details where necessary.</p>	6	
10.	<p>While berry picking one summer afternoon in southwest Yukon, a Canada Lands Surveyor discovers by accident the very faint remains of a monument location and from flagging tape on nearby trees and grade stakes in place, determines that it is directly in the path of construction for a new mine haul road. It is subsequently confirmed that the road cannot be moved because of alignment and grade constraints.</p> <p>a. What is the simplest and most cost-effective action he can take to preserve the evidence of the monument's location?</p> <p>b. What type of returns would he then file with the Surveyor General?</p>	4 3	
11.	Describe the differences between a compiled plan and an explanatory plan of Canada lands.	6	

	<b>Total Marks:</b>	100	
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