ASSOCIATION OF CANADA LANDS SURVEYORS
BOARD OF EXAMINERS

EXAMINATION P1
ACTS AND REGULATIONS RELATING TO SURVEYS OF CANADA LANDS

October 2016

This examination consists of 8 questions on 4 pages.

Time: 3 hours

Q. No		Marks Value	Marks Earned
1.	The Natural Resources Canada web site on Canada Lands Surveys includes access to Canada Lands Digital Cadastral Data. This data can be downloaded or it can be viewed using the CLSS Map Browser. a) What information is included in the digital cadastral data and what is it used for? b) Is the land interest information (property rights) such as licences, easements, leases and certificates of title included in the cadastral data? If not, where can you search for and find the land interest information? c) Describe how the cadastral data may or may not be used to access land interest information. d) What are some limitations or cautionary notes that a user must be aware of when using the cadastral data? e) What are the expected geospatial absolute and relative accuracies of the digital cadastral data?	6 3 2 2 3	
2.	a) Name the documents that were and are used to grant the fee simple title to land in the territories. b) What government agencies and officials are involved in issuing and raising title to land and what type of survey is required to describe the extent of the land in a crown grant? c) Name four exceptions that are typically excluded in a crown grant of land.	2 3 2	
3.	Describe when and why legal surveys are required for the following types of mineral surveys: • Placer claims granted in the Yukon • Placer base lines in the Yukon • Quartz mineral claims granted in the Yukon • Mineral claims granted in the Northwest Territories and Nunavut	8	

4.	Chapter 7 of the National Standards for the Survey of Canada Lands outlines the survey and plan requirements for Building Unit Surveys on Reserves in the provinces. Chapter 8 outlines the survey and plan requirement for Condominium Surveys in the territories and in the National Parks located in Alberta. The Condominiums may consist of either building units or of bare land units. a) What legislation governs the preparation of building unit plans on Reserves? b) What legislation governs the preparation of condominium plans in the territories and the National Parks in Alberta? c) There are some fundamental differences between the land ownership and governance in condominiums versus that of building units on Reserves. Describe these differences. d) Describe what is used to define boundaries of a building units and what is used to define boundaries of bare land units. e) Describe what measurements are needed to define the boundaries of building units, and when should these measurements be made.	2 3 4 2 2	
5.	Pursuant to the Canada Oil and Gas Land Regulations: a) What defines the east and west sides of a grid area? b) What defines the north and south sides of a grid area? c) What geodetic reference system (datum) is used to define a grid area? d) If there is an existing recorded legal survey of a well in a grid area what control should be used to determine the positions of new legal surveys of wells in the same grid area? e) Draw a neatly labelled sketch of grid areas $69^0$00'/$132^0$45'and $70^0$10'/$132^0$30'. Number the sections along the inside perimeter of these two grid areas.	2 2 2 3 4	
6.	a) Describe where monuments shall be placed on artificial boundaries being surveyed. b) Describe three situations where it may be inadvisable to place a monument at the re-established corner of a parcel in an urban development. In these situations describe what may be used to define the parcel corner. c) Describe what should be done to define and monument an artificial boundary where it terminates at a water boundary. d) Describe what evidence should be used to place a new monument on an existing straight line or curved boundary. e) Describe three situations where it is not necessary to place monuments at points of intersections with previously surveyed boundaries.	2 2 2 2 3	

7.	As a Canada Lands Surveyor, you have been hired to survey a mineral claim named DIAM in the Northwest Territories that was staked and granted in 2010 under the former Northwest Territories and Nunavut Mining Regulations. The application to record the claim shows it being 10500 feet in a north/south direction by 7500 feet in an east/west direction. The application notes that the southeast portion of the DIAM borders on the northwest part of a prior claim named ROC granted in 2005 and surveyed in August, 2012 as Lot 1003, Quad 95 P/06. DIAM is staked along part of the boundary of Lot 1003, with 1500 feet along the eastern boundary of Lot 1003 and 2000 feet along the northern boundary of Lot 1003. The application notes that a witness legal post was placed along the western boundary of DIAM to mark the northwest corner of DIAM due to a lake being at the claim corner. The staker noted that the corner was 900 feet N of the witness post. Draw a neat sketch at an approximate scale that would be partially sufficient to show the diagram of a Plan of Survey showing the surveyed mineral claim DIAM. In particular show the following: • Use solid lines to show the surveyed boundaries of the DIAM mineral claims. • State on the sketch or on a separate page noting where monuments need to be placed and what found evidence they are marking. Use an open circle to show where monuments would typically need to be placed for this type of mineral claim survey. • Use a solid circle to show where any found monuments of Lot 1003 would be used to define the DIAM claim boundaries. • Show the witness monument that would be required at the witness legal post and note what markings would be placed on the monument. Specify the distance and UTM grid bearing from the witness monument to the claim corner assuming that the grid convergence is - 1^0 12' (survey is west of UTM central meridian). • State what type of monuments can be placed to demarcate the boundaries of this type of mineral claim.	10	
8.	The owner of a remote parcel located at Pine Lake, 200 km northeast of Whitehorse, has hired you as a CLS, to subdivide her lot into two parcels of equal size fronting on Pine Lake. The lot was originally surveyed in 1909 and is shown on Plan 17416 CLSR as Lot 16, Group 5, Yukon Territory. The plan shows the lot to be approximately square, with the eastern boundary along the ordinary high water mark of Pine Lake, and three artificial boundaries of approximate lengths of 1000 feet running in cardinal directions. The plan shows wooden posts placed on western boundary at the southwest and northwest corners, and at points on the north and south boundaries 50 feet from the OHWM. The plan shows two bearing trees made at the northwest corner. The bearings shown on the plan are astronomic derived from observations on Polaris. Your land titles search reveals that Canada granted fee simple title to Lot 16 in 1911, and it has been transferred twice, the second transfer being to your client. Your field survey found the remains of a rotten wooden post lying down at the southwest corner, with the markings "//.X…" barely legible. These markings matched that shown on the plan. You also found a scar on a large spruce tree near the NW corner, and opened the scar to find the letters BT indicating that it appears to be one of the bearing trees at this corner. Your measurements between the butt of the old wooden post and the bearing tree is within 0.8 metres of the calculated plan distance when using the bearing tree that was shown on the plan as being 30 feet north of the northwest corner of the Lot. No other		

	evidence of the artificial boundaries was found. You made GNSS observations to georeference and derive bearings for your survey.		
	a) What tasks would you or your client need to do to set-up this project prior to commencing the field survey?	3	
	b) Your measurements to the OHWM indicate that there are positional differences of up to 10 m between your survey and that shown on the original Plan 17416 CLSR. How would you show these differences on your plan and what would you use to define the water boundary of the two new lots? Describe any approvals or legal documents that may be required to use the present OHWM position as defined by your survey.	3	
	c) You know that modern grants of crown land made under the *Territorial Lands (Yukon) Act* except a strip of land 30.48 m in width above the OHWM of a navigable water body. You have determined that Pine Lake is navigable. What information would you search for to determine whether there is any strip of land along Pine Lake reserved from Lot 16? If a strip is excepted from Lot 16, describe how would you survey and depict the strip and its boundaries on your plan.	2	
	d) Describe what you would use to re-establish the boundaries of Lot 16. Provide detailed reasons to support your boundary establishment, like you would in a survey report. What additional information needs to be included in the survey report to support your survey?	4	
	e) The new interior boundary, which runs in an east/west direction, needs to be surveyed to define the two new lots. Are there any survey requirements to cut and blaze this interior boundary and the re-established boundaries of Lot 16? What are the advantages and disadvantages of cutting the boundary that you would tell the owner?	2	
	f) Write a bearing statement that would be shown on your plan.	2	
	g) Using assumed information as necessary, draw a neat sketch that would be fully sufficient for the diagram of your subdivision plan including but not limited to showing Lot 16, the original and present location of the OHWM, the two new parcels, the evidence found, the monuments and ancillary monumentation placed, and a heavy or coloured line showing the lands dealt with by the plan, the OHWM ties, the boundary dimensions, and the geo-referencing information.	6	
	Total Marks:	100	