ASSOCIATION OF CANADA LANDS SURVEYORS
BOARD OF EXAMINERS

EXAMINATION P1
ACTS AND REGULATIONS RELATING TO SURVEYS OF CANADA LANDS

March 2016

This examination consists of 9 questions on 5 pages.

Marks

Q. No	Time: 3 hours	Value	Earned
1.	A newly-commissioned Canada Lands Surveyor is investigating opening a corporate geomatics practice in Dawson, Yukon. What requirements of the Canada Lands Surveyors Act must be met for the surveyor and the firm to engage in cadastral surveys in the territory?	5	
2.	Provide answers to the following questions: a) For surveys situated in the territories, what types of monuments are normally placed? b) For surveys situated on Canada lands in the provinces, what types of monuments are normally placed? c) What are the terms shown on a plan to note the replacement of the remains of rotten old wood post found in its original positon with a CLS77 monument? d) What is the purpose of ancillary monumentation? e) Describe three types of ancillary monuments and the situation where each type is typically used. f) What three methods may be used to define the boundaries of an easement that are dealt with by an Explanatory plan? g) What are the four mandatory committees that must be established by the Council of the Association of Canada Lands Surveyors?	2 2 2 2 2 2 2	
3.	a) The provinces and territories use different terms to describe a water boundary of an upland parcel of land. Name four of these terms and outline what features or data are used to define their position on the ground. b) If GNSS measurements were used to locate and plot a water boundary on a plan of survey, describe how the GNSS ties to the water boundary may be shown on the plan. What additional information needs to be submitted as part of your survey returns to define the location of the water boundary? c) If high resolution satellite imagery was used to locate and plot a water boundary on a plan of survey, what additional information needs to be submitted as part of your survey returns to verify and support this methodology? d) Write a statement to be placed on a plan that describes how the water boundary is plotted on the plan in a case where the survey used high resolution satellite imagery to locate the water boundary.	4 2 3 2	

4.	The National Standards for the survey of Canada Lands requires all surveys of monumented boundaries to meet a specified absolute accuracy and a minimum relative accuracy standard. Define the terms absolute accuracy and relative accuracy insofar as they are used for surveys, and specify the standards for each type of accuracy.	8	
5.	Describe three situations where it is NOT necessary to place monuments at points of intersections with previously surveyed boundaries.	5	
6.	There are various types of survey plans of Canada Lands and private lands in the territories that are commonly used for a particular land transaction, land interest or other purpose. Various land transactions and interests include those outlined in the 2014 Interdepartmental Letter of Agreement between Natural Resources Canada and Aboriginal Affairs and Northern Development for land transactions on Reserves, such as the removal of a parcel from reserve lands, allotment of land, leases longer 10 years, leases for 10 years or less, and non-exclusive use permit or licence. In the territories, survey plans provide a land description for the following land interests or purpose: settlement land, road right-of-way, crown land grants, fee simple title, leasehold title, easements, utility licences, mineral rights, etc. For each of the following survey plans, name the various land transactions, land interests or purpose that the plan is commonly used for: a) Official plan of survey confirmed under section 29 of the Canada Lands Surveys Act b) Compiled plan confirmed under section 29 of the Canada Lands Surveys Act c) Plan of Resurvey confirmed under section 29 of the Canada Lands Surveys Act d) Plan of survey approved under section 31 of the Canada Lands Surveys Act e) Plan of survey approved under territorial land titles legislation f) Plan of survey of a Building Unit approved under section 31 of the Canada Lands Surveys Act g) Plan of Survey of a Condominium prepared under territorial legislation or the Alberta's Condominium Property Act h) Explanatory Plan approved under section 31 of the Canada Lands Surveys Act i) Land Use Area Plan approved under section 31 of the Canada Lands Surveys Act j) Descriptive plan prepared under the Northwest Territories of Nunavut land titles legislation	 2 1 2 2 2 1 2 2 1 2	

7.	As a Canada Lands Surveyor, you have been engaged by a private developer to survey and prepare a condominium plan in Whitehorse YT of a 20 unit condominium in two townhouse (row-housing) buildings being constructed by the developer. Each building will consist of 10 interconnected units separated by party walls. The units will not vertically overlap each other, so either bare land units or building units may be used for this development. The development includes an area between each building that is to be used for an access road, parking and a small playground. a) Name the legislation and survey standards that govern the preparation of the plan. b) What needs to be considered and who should the surveyor consult prior to commencing the field survey? c) Describe the pros and cons of using either bare land units or buildings units for this development. Outline what is used to define the boundaries of a bare land unit versus that of a building unit. d) What measurements are needed to define building unit boundaries and bare land unit boundaries, and when would be the best time to make the measurements of each type of boundary? e) What areas should be set aside as common property for the condominium? Describe what would be used to define the boundaries of the common property for a bare land condominium and for a building condominium. f) The developer wants each unit to have the exclusive use of two parking stalls. Describe how the development could be designed to allow for these exclusive use parking stalls, and what, if any, extra boundaries would be needed to define them.	2 2 3 3 3 2	

8.	On May 1, 2010, Martin Thompson staked a full size creek placer claim named MART on Moose Creek and recorded it with the mining recorder on May 3, 2010. The plan of survey of the Moose Creek base line in this area shows a 0^0 bearing. On May 15, 2010, Joe Taylor staked six contiguous full size quartz mineral claims named JOE along three location lines on the hillside east of Moose Creek and recorded them with the mining recorder on May 17, 2010. The location lines are staked in a northerly direction with JOE 1, 3 and 5 left of the location lines and JOE 2, 4 and 6 right of the location lines. There is one other active prior quartz mineral claim named RUBY, the approximate location of which is shown on the mining recorders map slightly north of the JOE mineral claims. RUBY was staked and granted in 1995. The application for RUBY states that it is a full size standard claim with the location line running due north for a distance of 1500 feet (457.2 m) and the claim is 750 feet (228.6 m) to the right and left of the location line. Joe engages a Canada Lands Surveyor to survey the six JOE mineral claims. The CLS finds all of the location posts, with the JOE 1 and 2 location line on a bearing of 0^0 with a distance of 550 metres (1804 feet), the JOE 2 and 4 location line on a bearing of 0^0 with a distance of 400 metres (1312 feet), and the JOE 5 and 6 location line on a bearing of 15^0 with a distance of 500 metres (1640 feet). The CLS finds and ties the No. 1 and No 2 location posts of the RUBY mineral claim. The No. 1 location post of RUBY was found within the JOE 5 mineral claim. The bearing and distance between the No. 2 location posts of JOE 5 and 6 to the No. 1 location post of RUBY is 260 degrees, 300 metres (984 feet). The RUBY location line measures 400 metres (1312 feet) on a bearing of 0 degrees. The CLS makes a connection to the Moose Creek base line and also locates and ties the legal posts of the MART placer claim. The No 1 legal post of the placer claim is 20 m east of the base line and the No 2 post is 25 m east of the base line. The bearing and distance from the No 1 to No. 2 legal posts is 1^0 26', 200 metres (656 feet). The bearing and distance between the No. 1 legal post of the MART placer claim to the No. 1 posts of the JOE 1 and 2 quartz claims is determined to be 95^0 00', 610 metres (2001 feet). a) Draw a neat sketch at an approximate scale showing the configuration of the surveyed JOE mineral claims in relation to the RUBY mineral claim, the Moose Creek base line and the MART placer claim. • Use solid lines to show the surveyed boundaries of the JOE claims and dashed lines to show the boundaries of the RUBY mineral claim and MART placer claim. • Show the known dimensions of the placer claim and the quartz mineral claims in cases where no calculations are required. • Plot on the sketch the location of the legal (location) posts of the quartz and placer claims using a symbol and annotation, e.g. symbol "x", annotation " LP No. 1 MART". • Use an open circle symbol to show where monuments need to placed.	11	
	b) Joe instructed the surveyor to stake and survey any fractional mineral claims to include	4	

	any open ground found within the group of JOE claims. On the sketch drawn for question 8(a) above or on a separate sketch, show the extent of any fractional claims that the surveyor may need to stake. Outline the fractional mineral claim(s) using a colour or bold line, and show where the legal (location) posts should be staked to mark the claim(s).		
9.	As a Canada Lands Surveyor, you have been hired to survey a mineral claim named TEST 1 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 TEST 1 borders on the northwest part of a prior claim named FIRST granted in 2005 and surveyed in August, 2012 as Lot 1003, Quad 95 P/06. TEST 1 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 TEST 1 to mark the northwest corner of TEST 1 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 TEST 1. In particular show the following: • Use solid lines to show the surveyed boundaries of the TEST 1 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 TEST 1 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 east of UTM central meridian). • State what type of monuments can be placed to demarcate the boundaries of this type of mineral claim.	10	
	Total Marks:	100	