

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

**SCHEDULE I / ITEM 5
DATA BASE MANAGEMENT SYSTEMS (INFORMATICS)**

March 2007

Examination Results for Candidate No.:

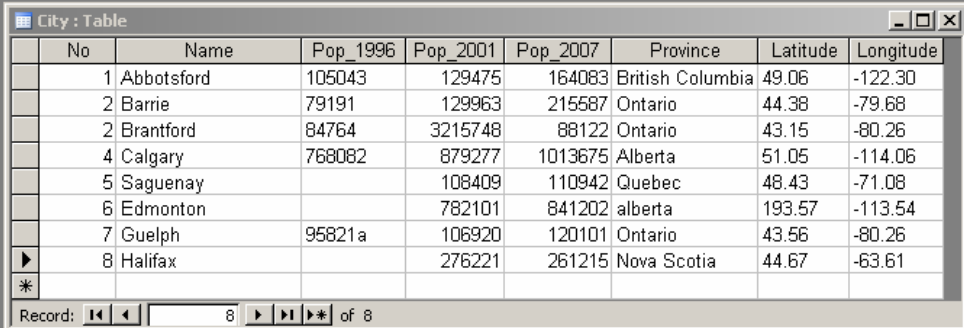

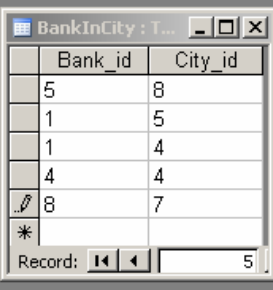

Note: This examination consists of 8 questions on 2 pages.

Marks

Q. No

Time: 3 hours

Value Earned

1	<p>For the following relational database structure, give 5 constraints you should implement to improve data integrity:</p>    	10	
	<p>For the previous relational database structure, do the reverse engineering process and draw the conceptual schema that might represent the semantics of this database. Each city is represented by a point, each country by an aggregated of polygons and banks have no geometry. You can draw a UML object-class diagram or an Entity/Relationship diagram.</p>		20
3	<p>Write the appropriate SQL query to answer the given questions:</p> <p>a) how many banks are there in Calgary? b) what is the difference between Abbotsford population in 1996 and 2007? c) in which province Saguenay city is in? d) in 2007, which cities have a larger population than Halifax? e) How many banks are in Ontario?</p>	15	
4	<p>What are the steps required to develop a spatial database that corresponds to users' needs?</p>	15	
5	<p>Give an example of a table which does not respect the first normal form ("A relation in which the intersection of each row and column contains one and only one value"). Give a solution for this example, to respect the first normal form.</p>	10	

6	Give two characteristics of the data held in the data warehouse.	5	
7	What is ISAM ? Give one problem with this method.	5	
8	Define each of the following: a) Database b) Database Management System c) Relational Table d) UML e) Data Manipulation Language (DML) f) Primary key g) Foreign key	20	
	Total Marks:	100	