

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

SCHEDULE I / ITEM 5

March 2008

DATA BASE MANAGEMENT SYSTEMS (INFORMATICS)

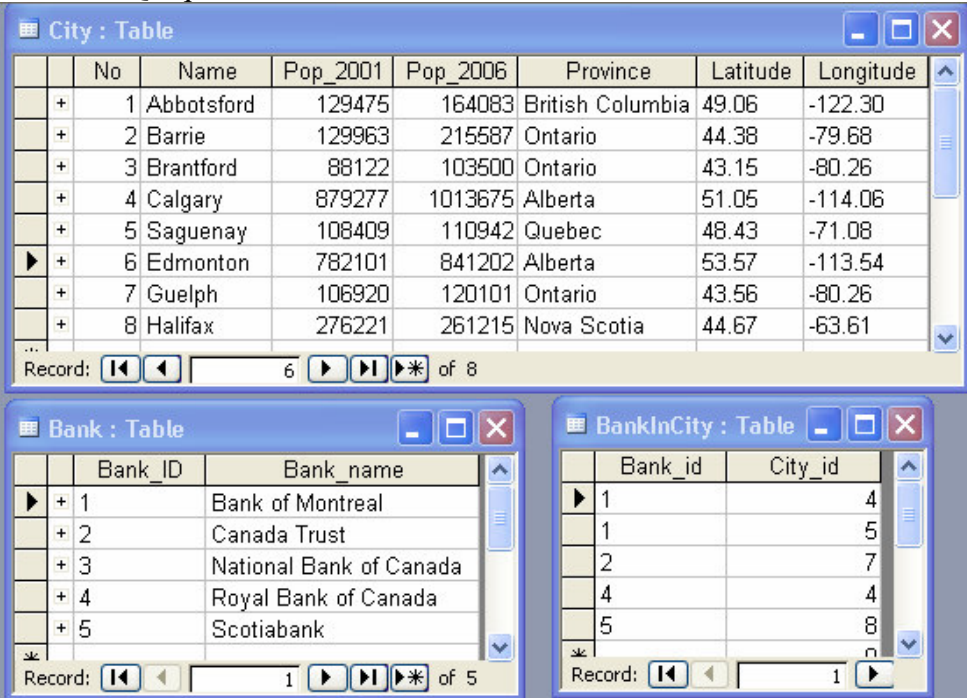
Note: This examination consists of 7 questions on 3 pages.

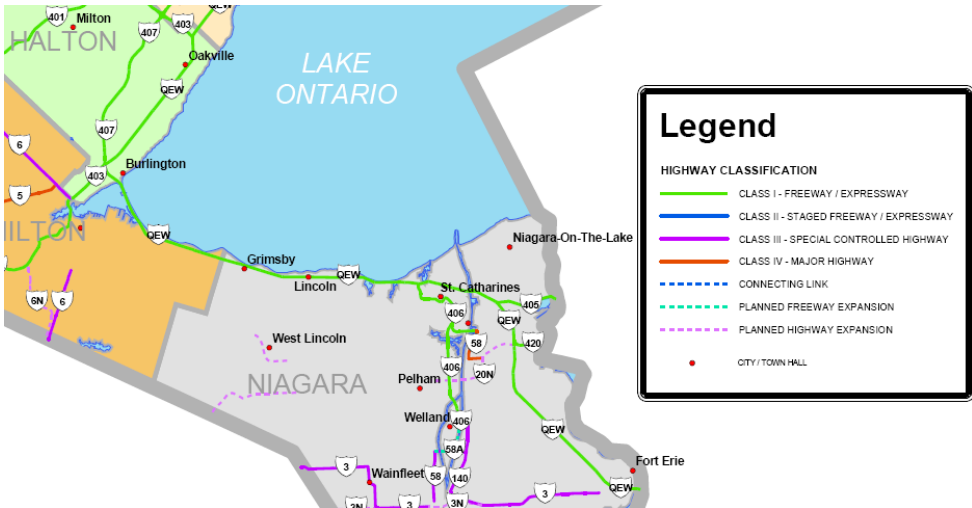
Marks































Q. No

Time: 3 hours

Value Earned

1	<p>Put these ten steps in order and for each of them, give the name of the spatial database development life cycle phase.</p> <ol style="list-style-type: none"> 1. Load data into the spatial database 2. Spatial integrity constraints should also be defined to guarantee the exactness of spatial relations between objects. 3. Evaluation of existing business practices and operations. 4. Design a model according to users' needs and that is technology-independent. 5. Translate the Platform Independent Model to create a Platform Specific Model. 6. Feasibility study to implement the database. 7. CASE tools are used. 8. Query the database. 9. Develop the procedures and triggers in PL/SQL or other programming language. 10. Compare transactional and multidimensional families of database technology to select the most appropriate one. 	15	
2	<p>Using the data of this database, give the question and the answer for each of these SQL queries:</p>  <p>Continued on Page 2</p>	20	

<p>2 (cont.)</p>	<p>a) SELECT City.Name FROM City WHERE pop_2001 > pop_2006;</p> <p>b) SELECT Count(*) FROM City, BankInCity WHERE City.No=BankInCity.City_id AND City.Province='Alberta';</p> <p>c) SELECT SUM(City.Pop_2006) FROM City WHERE City.Province='Alberta';</p> <p>d) SELECT City.Name FROM City ,Bank , BankInCity.Bank_id WHERE Bank.Bank_name='Bank of Montreal' AND Bank.Bank_ID = BankInCity.Bank_id AND City.[No] = BankInCity.City_id;</p> <p>e) SELECT City.Name FROM City, BankInCity WHERE City.No = BankInCity.City_id GROUP BY City.Name HAVING count(BankInCity.Bank_id) > 1;</p>		
<p>3</p>	<p>Draw the conceptual schema (CIM) of a spatial database (using class, attribute, association, enumeration, geometry) that might represent all the information of this map. You can use a UML object-class diagram notation or Entity/Relationship formalism.</p> 	<p>20</p>	
<p>4</p>	<p>Enumerate three steps used to translate CIM (conceptual model) to PIM Relational data model.</p>	<p>6</p>	

5	<p>For each of the following five spatial integrity constraints using OGC Spatial operators, draw the spatial relationship between spatial objects. Clearly illustrate each object, its boundary and its interior.</p> <table border="1" data-bbox="302 348 1073 583"> <thead> <tr> <th></th> <th></th> <th></th> <th>Relation</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Road Segment</td> <td></td> <td>Crosses</td> <td>Railway</td> <td></td> </tr> <tr> <td>2</td> <td>Road Segment</td> <td></td> <td>Touches</td> <td>Railway</td> <td></td> </tr> <tr> <td>3</td> <td>Parcel</td> <td></td> <td>Contains</td> <td>Building</td> <td></td> </tr> <tr> <td>4</td> <td>Bridge</td> <td></td> <td>Within</td> <td>Road Segment</td> <td></td> </tr> <tr> <td>5</td> <td>Customs</td> <td></td> <td>Touches</td> <td>Country</td> <td></td> </tr> </tbody> </table>				Relation			1	Road Segment		Crosses	Railway		2	Road Segment		Touches	Railway		3	Parcel		Contains	Building		4	Bridge		Within	Road Segment		5	Customs		Touches	Country		15	
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6	Give two examples of heavy development methods and two examples of light methods.	8																																					
7	<p>What do the words in each part have in common? Explain</p> <p>a) CIM, PIM, PSM b) UML, E/R c) Oracle, SQL server, Access d) OCG, ISO e) DFD, UML activity diagram f) GM_Curve, GM_Point, GM_Surface g) Primary key, Foreign Key, Required data h) INSERT, UPDATE, DELETE</p>	16																																					
Total Marks:		100																																					