

CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS

**SCHEDULE I / ITEM 5
DATABASE MANAGEMENT**

March 2009

Note: This examination consists of 9 questions on 2 pages.

Marks

Q. No

Time: 3 hours

Value Earned

| | | | |
|---|--|----|--|
| 1 | Draw the conceptual diagram (CIM level) of a topological geometric data structure. Show geometrics primitive, their attributes and the relationships amongst them. | 10 | |
| 2 | Name and explain three tasks you can do with a CASE tool (3 pts each) | 9 | |
| 3 | Give an example of a relationship with an attribute. Draw the conceptual schema (CIM Level). | 5 | |
| 4 | <p>For this Relational Database Model, do the reverse engineering to create a normalized Conceptual Model (CIM level). Use Entity/Relationship or UML.</p> <p>Domain for Junction Type = Intersection, Dead end, Ferry Domain for Structure Type = Bridge, Tunnel Domain for Functional Road Class = Freeway, Major Road, Collector, Street</p> | 20 | |
| 5 | <p>For each the following tables, give the appropriate SQL query in order to extract the data from the tables of Question #4 which then can be loaded into the tables below.</p> | 16 | |

| | | | |
|---|--|-----|--|
| 6 | What is interoperability (2 pts)? In Spatial Database, what can interoperability be used for? Give two examples (2 pts each) | 6 | |
| 7 | Give four examples of integrity constraints used in a Spatial Database. (3 pts each) | 12 | |
| 8 | Name three differences between a Transactional database and a Multidimensional database (2 pts each) | 6 | |
| 9 | Define each of the following (2 pts each): a) Datamart b) Database Management System c) Relational Table d) Trigger e) Data Definition Language (DDL) f) Primary key g) Foreign key h) Attribute | 16 | |
| | Total Marks: | 100 | |