

CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS

C5 - GEOSPATIAL INFORMATION SYSTEMS

Mar-14

Note: This examination consists of 10 questions on 1 page.

Marks

<u>Q. No</u>	<u>Time: 3 hours</u>	<u>Value</u>	<u>Earned</u>
1	What are the four groups of functions a typical comprehensive GIS must include?	8	
2	What is "topology"? Using a simple diagram, explain three types of topological relationships in geographic data representation.	10	
3	Name and briefly describe five components of geographic data quality commonly identified by some geospatial data quality standards such as the U.S. Spatial Data Transfer Standards (SDTS).	10	
4	List the advantages and disadvantages of vector geoprocessing as compared with raster-based methods.	12	
5	What is "geocoding" or "address Matching"? Why is the geocoding an important vector geoprocessing function?	10	
6	Use a diagram of an example case and explain the line-on-polygon operation.	8	
7	Explain, with the aid of diagrams, the difference between "systematic" and "adaptive" sampling methods used in digital terrain modeling.	10	
8	You are asked to prepare a map that shows the forest lands that are suitable for harvesting. The lands must not be: (1) within 300 feet of roads, and (2) within 500 feet of streams. You are given three digital maps showing roads, streams and forest stands, respectively. Describe the procedure (steps, required data, queries and spatial operations, and outputs) that you will use to complete the task. Draw a flowchart to show the steps.	12	
9	Do you think the merging of GIS and mainstream information technology (IT) will lead to the demise of GIS eventually?	10	
10	Define the following terms in conceptual modeling using the entity-relationship (E/R) model: a) entity; b) entity type; c) relation; d) attribute; and e) cardinality of relationships.	2 2 2 2 2	
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