

CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS

C5 - GEOSPATIAL INFORMATION SYSTEMS

October 2016

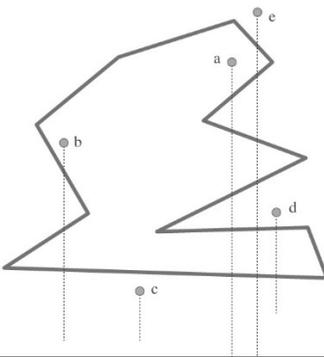
Note: This examination consists of 10 questions on 1 page.

Marks

Q. No

Time: 3 hours

Value Earned

1.	Define the following terms (each worth 2 marks): Address Matching, <i>De Facto</i> Standard, Feature Code, Overlay Operation, Rubber Sheeting.	10	
2.	Name the three types of simple features used in GIS and their geometric properties. Describe how each type of these features is represented in GIS in vector and raster forms.	4 6	
3.	What four types of distortions may be produced when geographic positions are projected onto two-dimensional maps? Which of them does a UTM projection try to minimize?	10	
4.	Describe, with examples, key differences between vector and raster geographic representations.	10	
5.	Explain, with the aid of diagrams, the difference between "systematic" and "adaptive" sampling methods used in digital terrain modeling.	10	
6.	The relational data model has been the most popular data model for DBMS. Explain, with examples, the relational data model. Also show how a relational database can be used to store the spatial and non-spatial data for a land parcel.	12	
7.	With simple diagrams, explain the three basic elements of topological relationships in geographic data representation.	6	
8.	Explain point-in-polygon search by the half-line (or plumb-line) algorithm. Use the figure below to facilitate your explanation. 	10	
9.	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	
10.	“The Internet has been increasingly integrated into many aspects of GIS, and the days of standalone GIS are mostly over.” Do you agree with this statement? Why or why not?	10	
Total Marks:		100	