

**CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS**

**C5 – GEOSPATIAL INFORMATION SYSTEMS**

**June 2020**

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

**Marks**

**Q. No**

Time: 3 hours

Value   Earned

1.	Discuss at least three key features that distinguish a fully-fledged GIS from other information systems.	10	
2.	Describe all of the following concepts briefly: a) Tobler’s First Law; b) Geocoding; c) Universal Transverse Mercator (UTM); and d) Metadata.  You may include illustrations if appropriate.	12	
3.	What are the differences between raster and vector data structures? Explain how data is collected and stored in these structures. Give one example of spatial data especially well-suited for vector data and one for raster data.	10	
4.	In a vector GIS, how do you quickly determine if a point falls within a polygon by considering search efficiency and exception handling? Illustrate your discussion with sketches.	10	
5.	Explain, with the aid of diagrams, the difference between "systematic" and "adaptive" sampling methods used in digital terrain modeling.	10	
6.	Define and compare local operation and focal operation in raster data processing. Using illustrations and examples will result in better marks.	8	
7.	You are asked to find the suitable forestland for harvesting, which should satisfy the following criteria: 1) cannot harvest within 300 ft. of roads; and 2) cannot harvest within 500 ft. of streams. The maps showing roads, streams and forest stands are available. Describe the steps you will follow to complete the task using a GIS. Include a flowchart in your answer.	12	
8.	What are the human issues, other than the computer issues, which needs to be considered in implementing and operating a GIS?	8	
9.	List and briefly describe reasons why GIS implementations can “fail”.	10	
10.	Web GIS and Internet GIS are often used as synonymous with each other, but they are different. Discuss the difference between Web GIS and Internet GIS.	10	
<b>Total Marks:</b>		<b>100</b>	