



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2023/2024

- COURSE NAME : GEOGRAPHICAL INFORMATION SYSTEM FOR CIVIL ENGINEERING
- COURSE CODE : BFG 40803
- PROGRAMME CODE : BFF
- EXAMINATION DATE : JANUARY / FEBRUARY 2024
- DURATION : 3 HOURS
- INSTRUCTIONS :
1. ANSWER ALL QUESTIONS
 2. THIS FINAL EXAMINATION IS CONDUCTED VIA
 - Open book
 - Closed book
 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGE

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TERBUKA

- Q1 (a) Explain the application of GIS in civil engineering works. (5 marks)
- (b) Classify **TWO (2)** benefits of GIS application is applied in planning stage. (5 marks)
- (c) Data collecting is an essential step in the problem-solving process, particularly in catastrophe situations. Illustrate how GIS assists civil engineers in managing data disaster issues. (10 marks)

Q2 **Figure Q2** shows the data shape connection between real world, vector and raster data based on this figure,

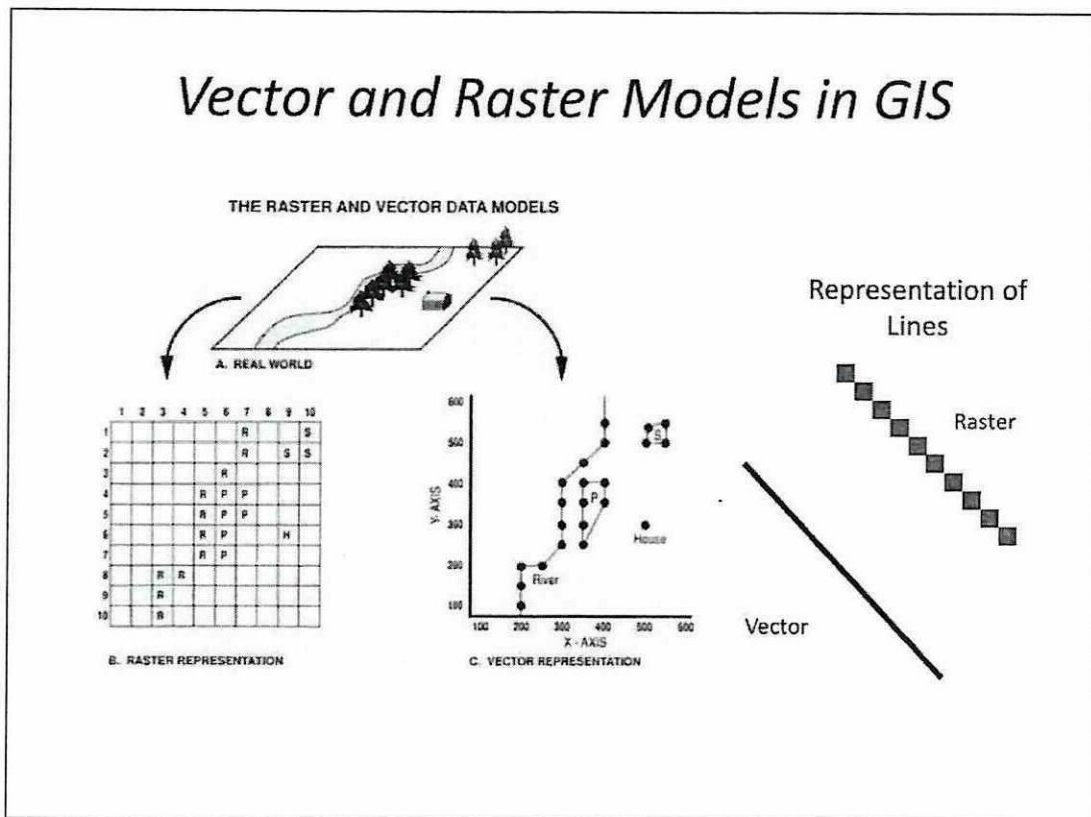


Figure Q2.1: The connection between data type.

- (a) Categorize the sources of real-world data. (5 marks)
- (b) Assemble the steps involved in archiving raster data from drones using aerial photography. (15 marks)

Q3 Figure Q3.1 illustrates the interface of GIS software. Please answer the following questions based on the diagram:

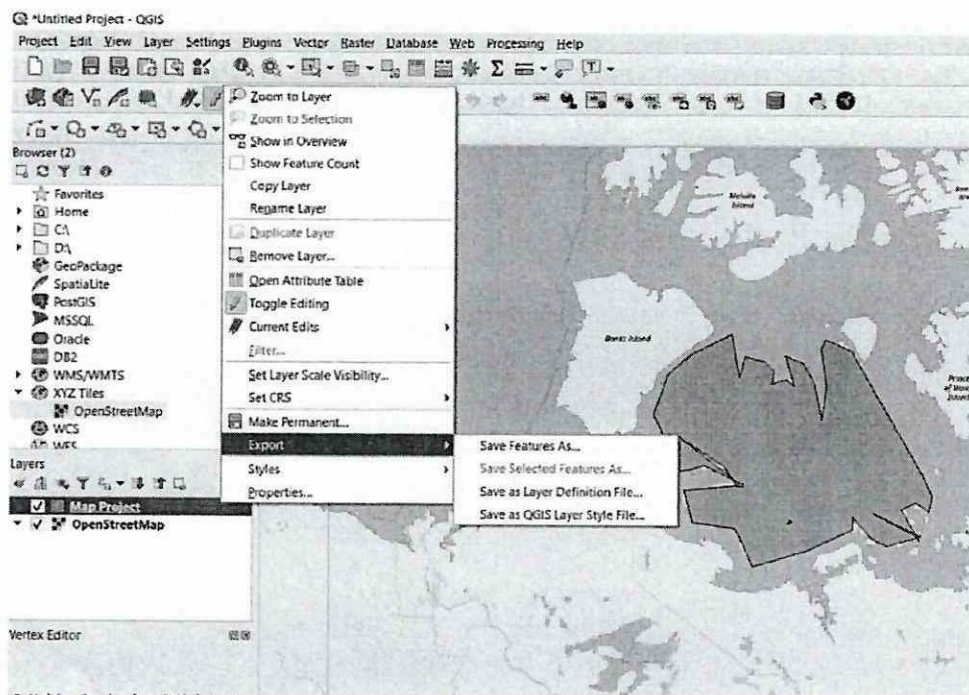


Figure Q3.1: The interface in QGIS software

- (a) Categories the function of attribute table interface. (10 marks)
- (b) A geoprocessing service is a collection of geoprocessing tools published to a server site to perform tasks necessary for manipulating and analyzing geographic information across a wide range of disciplines. Explain TWO (2) data processing operation that is crucial for spatial analysis. (10 marks)

- Q4
- (a) The geocoding process is a method of creating new data from many types of data sources, such as hardcopy to digital vectorized data. List the importants of geocode and assemble the consequences of misleading geocoding. (10 marks)
 - (b) Digitize is a process that can assist in the resolution of data availability. Explain the importance of digitizing in the context of area density analysis in GIS. Support your answer with examples and discuss how the accuracy of digitized data directly influences the outcomes of area density analysis. (10 marks)

- Q5** (a) Rapid urbanisation and population growth have contributed both to an ever - increasing demand for water consumption and, at the same time, to the level of water pollution in Malaysia. The quality of water in Malaysia, as well as access to water in general, is a major concern. Interpret how civil engineers use GIS to optimize water quality issues?
(10 marks)
- (b) Malaysia has an early warning system for earthquake, flood, and tsunami including Short Message Service (SMS) capabilities, and other technologies to alert communities of impending disaster risks. With the ratification of the Sendai Framework for Disaster Risk Reduction (2012-2030), Malaysia continues to place green emphasis to reduce disaster risks in the Mid-Term Review of the Eleventh Malaysia Plan (2016-2020). Elaborate the role of civil engineer in production of disaster risk map.
(10 marks)

- END OF QUESTIONS -