UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2019/2020

COURSE NAME	:	GIS FOR NATURAL RESOURCES MANAGEMENT
COURSE CODE	:	BWJ 30303
PROGRAMME CODE	:	BWW
EXAMINATION DATE	:	DECEMBER 2019 / JANUARY 2020
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

Q1 Responsible management of natural resources through geographic information system (GIS) is possible only with high quality data collection and continuous analyses.

(a) List **TWO (2)** current problems in natural resource management.

(2 marks)

(b) Define the term Remote Sensing.

(2 marks)

(c) Identify **THREE (3)** principles of Remote Sensing.

(3 marks)

(d) Hardware and software are among the components of GIS. Name **TWO (2)** GIS software systems that are available in Faculty of Applied Sciences and Technology (FAST) GIS Laboratory. Briefly explain **TWO (2)** general functions of each software.

(6 marks)

(e) Compare between vector approach and raster approach for representing geographic features by giving **SIX (6)** differences.

(12 marks)

Q2 GIS treats real-world spatial features as combinations of geometric primitives and database records.

(a) Define primary key, foreign key and tuple in relational tables.

(3 marks)

(b) You have been exposed to the use of TerrSet software as one of the GIS software systems. Assess the importance and usefulness of TerrSet software in natural resource management including the management of watershed by giving **FIVE (5)** opinions.

(10 marks)

(c) Suppose there is still a lack of information on the habitat characteristics and behaviour of proboscis monkey or the long-nosed monkey in Borneo Island. Choose **ONE (1)** method to collect more data on the habitat and behaviour of the population. Outline **FIVE (5)** information about the selected method or tool.

(12 marks)

Q3 Spatial data, also known as geospatial data, is information about a physical object that can be represented by numerical values in a geographic coordinate system.

(a) Name **ONE (1)** equipment for conducting conventional surveying and **TWO (2)** equipment for doing Global Positioning System (GPS) survey.

(3 marks)

(b) Between conventional surveying and GPS survey, choose the more economical method. Justify your selection by giving **FOUR (4)** comparisons.

(10 marks)

(c) Assess the differences between GIS and Radio Telemetry for managing natural resources by giving **SIX (6)** comparisons.

(12 marks)

Q4 Visible satellite images, infrared satellite images and water vapour satellite images are among the types of satellite images.

(a) A satellite imagery shows the presence of forest fire near an aborigine settlement in Johor National Park of Endau Rompin. You would like to create a thematic map on the effects of the forest fire to the villagers' economic and agricultural activities. Plan **SEVEN (7)** planning steps of GPS survey.

(7 marks)

(b) Outline **TWO (2)** disadvantages of using water vapour satellite images as compared to the visible satellite images and infrared satellite images.

(2 marks)

(c) Do you agree that water vapour satellite images have more advantages over the visible satellite images and infrared satellite images? Briefly explain your choice by giving **THREE (3)** viewpoints.

(6 marks)

(d) Beside satellites, aerial photography has been used as a method in climate change studies. Do you agree that aerial photography can highlight the die-off of certain vegetation due to the effects of climate change on global temperatures? Justify your choice by giving **FIVE (5)** opinions.

(10 marks)

– **END OF QUESTIONS** –