



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**SECOND YEAR SECOND SEMESTER EXAMINATION FOR DEGREE OF
BACHELOR OF SCIENCE IN GEOSPATIAL INFORMATION SCIENCE
WITH INFORMATION TECHNOLOGY**

CITY CAMPUS

PGS 214: GPS PRINCIPLES AND APPLICATIONS IN GIS

Date: 28th November, 2016

Time: 9.00 - 12.00pm

INSTRUCTIONS:

- Answer Questions ONE (Compulsory) and any other TWO.



QUESTION 1

- a) Define the following (5 marks)
 - i. Ionosphere
 - ii. Constellation
 - iii. Triangulation
 - iv. Ephemeris
 - v. Clock Bias
- b) Compare GPS and GPRS (5 marks)
- c) Explain the characteristics of GPS (8 marks)
- d) Using a diagram, discuss the three segments that comprise the Global Positioning System. (12 marks)

QUESTION 2

- a) Discuss the errors associated with uncorrected GPS positioning. (12 marks)
- b) Discuss the type of data that can be collected by GPS (8 marks)

QUESTION 3

- a) Assume you have been provided with tabular data collected using Garmin GPS system. Explain how to do the following. (20 marks)
 - i. Importing the collected GPS data to a GIS.
 - ii. Integrating the data with other GIS data.
 - iii. Creating a map from these data.

QUESTION 4

- a) Discuss the real time differential correction and post processing methods used to improve the accuracy of GPS positioning (14 marks)
- b) List any six GPS system available in the market (6 marks)

QUESTION 5

- a) Discuss how radio signals broadcast by Global Positioning System satellites are used to calculate positions in real time on the surface of the Earth. (20 marks)

QUESTION 6

- a) Discuss the areas of applications for GPS (20 marks)