

UNIVERSITY OF COLOMBO – SRI LANKA
SPECIAL DEGREE EXAMINATION IN ARTS (GEOGRAPHY) – PART II
SECOND SEMESTER FINAL EXAMINATION - 2018

GYG 4280 – GIS APPLICATIONS

TWO (02) HOURS

Selecting at least one from each part answer **THREE (03)** questions only.

PART ONE

- 01.** I. What is the difference between Kriging and IDW methods? (02 Marks)
- II. What are the reasons to have different methods for interpolation? (04 Marks)
- III. Discuss with suitable examples the applications of interpolation techniques in GIS. (06 Marks)
- IV. What are the determining factors of accuracy when performing an Interpolation task using GIS tools? (08 Marks)
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- 02.** I. Name any tool that can be used for relief analysis in Arc GIS 10.1. (02 Marks)
- II. Briefly explain the techniques based on GIS that can be used to collect basic data which are necessary to perform any kind of relief analysis which you have learnt. (04 Marks)
- III. Explain with suitable examples the importance of raster data when performing any relief analysis technique in Arc GIS. (06 Marks)
- IV. “Explain how to advance the productivity and the efficiency of performing relief analysis based on GIS tools than manual cartographic techniques. (08 Marks)
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- 03.** I. Discuss in brief the importance of both vector and raster data representation when preparation of thematic maps. (02 Marks)
- II. Explain in brief any tool which you have learnt that can be used for preparation of Choropleth maps in Arc GIS 10.1. (04 Marks)
- III. Select one example and explain the steps of preparing an Isoline map in Arc GIS 10.1 (06 Marks)
- IV. “Accuracy of thematic maps depends on the accuracy of data provided as inputs in GIS platforms” Discuss. (08 Marks)

PART TWO

04. I. Name two sources which can be used for downloading satellite images free of charge. (02 Marks)
- II. Explain in brief the differences between a normal aerial photograph and a satellite image. (04 Marks)
- III. Discuss the similarities and dissimilarities between supervised and unsupervised satellite image classification. (06 Marks)
- IV. "Even though GIS can classify a satellite image very quickly, accuracy will depend on its ground verifications" Discuss. (08 Marks)
05. I. State the difference between passive and active sensors of a satellite. (02 Marks)
- II. Explain why near infrared band is more important of the electromagnetic spectrum in identifying the natural vegetation on the surface of the earth. (04 Marks)
- III. Discuss the importance of the electromagnetic spectrum in capturing terrain characteristics using passive sensors. (06 Marks)
- IV. "Digital Number (DN) of a satellite image depends on the reflected electromagnetic spectrum and the reflectivity of objects on the surface of the earth can be changed due to many other factors" Discuss (08 Marks)
06. I. Name any software which you have used in image processing for images which have taken from Unmanned Aerial Vehicles (UAV). (02 Marks)
- II. Explain in brief two application areas of UAVs in Geography. (04 Marks)
- III. Discuss the advantages and disadvantages of mapping based on UAVs. (06 Marks)
- IV. "Can UAVs be used as a tool of updating the existing topographic maps in Sri Lanka?" Discuss (08 Marks)