Uva Wellassa University, Sri Lanka

End Semester Examination – September/October 2012

(SCT)

MRT 341-2

Remote Sensing and Geographic Information Systems

Duration: Two (02) hours

Uva Wellassa University

Answer **All** questions
Each question carries twenty (20) marks
Illustrate your answers with sketch diagrams where necessary

1. Write illustrated notes on the following.

(i) Elements of image interpretation

(ii) Components of Geographic Information Systems (GIS)

(iii) Effect of scattering and absorption in remote sensing

(iv) Digital Numbers and Resolution of satellite images

(v) GPS

2. You have been given the task of selecting suitable sites for locating a mineral processing plant in an urban periphery using GIS. Assume that you have access to all required data available with different organizations.

(i) Describe the parameters you would consider as inputs for this analysis.

(ii) Briefly explain how you would perform the above analysis.

3.

(i) What is Geographic Coordinate System?

(ii) What are the differences between Universal Transverse Mercator (UTM) coordinate system and the Universal Polar Stereographic (UPS) coordinate system?

(iii) Describe why we have to use different coordinate systems for different parts of the world.

4.

(i) What is GIS planning? How can it be successfully implemented?

(ii) What are advantages of GIS over traditional data management methods?

(iii) Explain how GIS could be used in your chosen profession?

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5.

(i) Define spectral reflectance.

(ii) What is a spectral reflectance curve?

(iii) Which regions of the EM spectrum show the largest reflectance for vegetation/soil/water?

(iv) How can we utilize spectral reflectance curve data base for interpretation of satellite images?

6. Compare and contrast followings

(i) Raster vs vector data

(ii) Passive vs active sensors

(iii) Sun synchronous orbit vs geostationary orbit

(iv) Whiskbroom scanners vs pushbroom scanners

(v) Rayleigh scattering vs Mie scattering