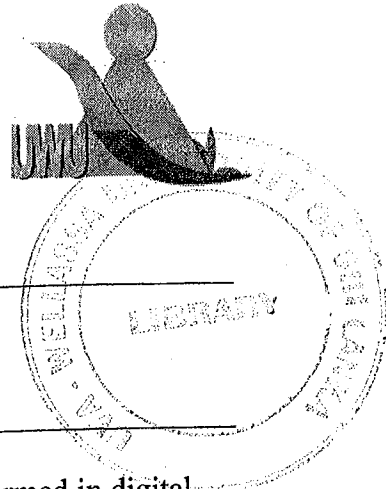


Uva Wellassa University, Sri Lanka
End Semester Examination – Dec. 2009/Jan. 2010
CST 441-2 Geographic Information Systems

Time: Two (02) hours



Total 07 Questions

Answer **six (6)** questions including Question 1

Question 1 carries 40 marks and all others 12 marks each

1. With labeled sketch diagrams explain the following operations performed in digital image processing as applied to remote sensing images.
 - (i) Contrast stretching (10 marks)
 - (ii) Spatial filtering (10 marks)
 - (iii) Georeferencing (10 marks)
 - (iv) Colour Compositing (10 marks)

2. Write short notes on the following.
 - (i) Geographic coordinate system (6 marks)
 - (ii) Each term of the acronym "GIS" (6 marks)

3. (i) Describe the components of GIS environment and briefly explain their roles. (6 marks)
(ii) Giving examples describe spatial attributes in a GIS. (6 marks)

4. Write illustrated notes on the following.
 - (i) Raster data model (6 marks)
 - (ii) Digital Numbers and Resolution of a satellite image (6 marks)

5. You have been given the task of selecting suitable sites for locating a chemical industry 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 input maps for this analysis. (6 marks)
 - (ii) Briefly explain how you would perform the above analysis using "binary evidence" maps. (6 marks)

6. Using a simple example discuss the advantages of "Index Overlay Method" over the "Boolean Logic Model" used in GIS analysis. (12 marks)

7. Explain the concepts of *domain*, *representation*, *polygon map* and *filter* in the "ILWIS" GIS software. (12 marks)