EASTERN UNIVERSITY, SRI LANKA

FACULTY OF AGRICULTURE

FOURTH YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE – 2016/17

(Nov/Dec - 2018)

AE 4101 – METEOROLOGY AND GEO-INFORMATICS

PRACTICAL EXAMINATION (GEO-INFORMATICS)

Answer all questions   **Time: 2 hours**

Note:
1. All required data for the practical examination is provided as soft copy in the computer with Arc GIS 10.5 version.
2. The answers should be saved in the folder with index number in the desktop.

1. a. Create two maps comparing the Population in 2001 and 2012 (Layout Landscape view, A3 size) fulfilling the following requirements (Save the file as Population .mxd).

   i.   Include the Population of years 2001and 2012
   ii.   Assign graduated colours from the symbology
   iii. Label the Districts by Name
   iv.   Set Suitable Title, North Arrow, Scale Bar, Neat line and Legend
   v.   Export the output as Population.jpeg   (30 marks)

   b. Prepare a Map by fulfilling the following criteria (Save the file as Dense Populated Districts. mxd).

   i.   Select all districts where population in 2012 is greater than 1,000,000 and export as separate layer as Dense Populated Districts.
   ii.   Prepare a Vertical Bar Graph to show population 2012 in the above selected Districts and include the graph into the above map layout
   iii. Export the output as Dense Populated Districts.jpeg with proper mapping features (Layout Portrait view, A4 size).

                                                                                        (30 marks)

   c. Calculate and create a layout to compare the Population Density in 1963 and 2012 (Save the file as Population_density.mxd). Export the maps as Population_Density.jpeg in one layout (Landscape Layout view, A3 size) with proper mapping features.

                                                                                        (40 marks)

2. a. Find the "Suitability land for Agriculture in the Batticaloa District" by using (techniques such as export, merge, clip, buffer and other overlay operations. Use following criteria for the analysis.

   i. Single ring buffer for land should be at 3 km away from Road (use dissolve none type
   ii. Single ring buffer for land should be at 3km away from towns (use dissolve none type
   iii. Create a composite map from 2 buffer layers using Intersect Overlay Analysis (Save file as Land Suitability. mxd)
   iv. Export the map as Land Suitability.jpeg with proper mapping features

   (50 mar

   b. Create a Paddy Cultivation Map of Batticaloa District using the following attributes:

   i. Include DS Division layer of Batticaloa District
   ii. Select the Paddy cultivated DS Divisions and export as separate layer.
   iii. Join the Paddy cultivation.xls as attribute table.
   iv. Create a layout to compare the Production increase (mt) and Extent increase (ha) betwe 2010 and 2017 (Changes_Paddy Cultivation.jpeg).
   v. Create a layout to compare the total Loss of paddy for the years 2014, 2015, 2016 2017 (Paddy_Loss. jpeg).
   vi. Export the maps with proper mapping features in jpeg. Format in the above given nam
   vii. Save the file as Paddy Cultivation. mxd.

   (50 mar

3. Create a hypothetical Land Use Map by creating following polygon, line and point shape fil

   a. Study Area
   b. Land use patterns (Paddy, Vegetation and Water body)
   c. Road network (Major and Minor roads)
   d. Settlements

   Consider the following criteria in developing the Land Use Map:

   i. Define proper coordinate system for each shape files.
   ii. Assign sub classes and symbology for each attributes.
   iii. Calculate the geometric extents of each attributes (Area (ha), Length (m) and Coordina
   iv. Export as Land_Use Map. jpeg file in B5 layout view with proper mapping features
   v. Save the file as Land Use Map.mxd

   (100 mark

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