SS3102 Land Suitability Evaluation (Elective)

INSTRUCTIONS
Answer FOUR (4) questions only including Question 05 (Five).
Only non-programmable calculators are permitted.
Mobile phones are NOT permitted.
Attach the question paper to the **end** of the answer script

TIME: 2 (two) Hours

INDEX NUMBER

1)

   a)

      i)   Write down the general indicators that show the land is becoming a scarce resource. (10 marks)

      ii) Name two institutions in Sri Lanka which produce information or define regulations that are directly influencing the land use planning process. (10 marks)

      iii) Indicate one main function of each institution you mentioned in the answer to question ii) above. (10 marks)

   b)

      i)   "Climate change could alter the land use pattern". Giving example/s, prove the preceding statement. (20 marks)

      ii) With proper technology and knowledge, certain countries have overcome the natural barriers for agricultural land uses. Using an example, explain how technology could enable us to practice or adopt certain land uses which were otherwise impossible. (20 marks)

      iii) Multipurpose projects appear to be a promising option to deal with the dwindling resources. What are the challenges that the project managers could face during the implementation of such projects? (30 marks)

2)

   a)

      i)   What is the relationship of land evaluation to land use planning? (10 marks)

      ii) Land use planning involves professionals from various disciplines. List five categories of professionals that are involved in the land use planning process. (10 marks)

      iii) "The experience of the personnel involved in the land use planning process is very important for an effective outcome". Do you agree with the above statement? State the reasons that justify your answer. (25 marks)

   b)

      i)   Enlist five expected outcomes of land evaluation. (10 marks)

      ii) Explain briefly why and when the qualitative evaluations are done in land evaluation? (20 marks)

      iii) An agriculture graduate should be well aware of the land evaluation and land use planning process than any other graduate in the science stream. What is your idea on this statement? (25 marks)

3)

   a)

      i)   List the main considerations or aims of land suitability evaluation. (10 marks)

ii) What makes the land suitability evaluation different from land evaluation? (15 marks)

iii) Explain the difference between **land suitability evaluation** and **land suitability classification**? (20 marks)

b)

i) What are the two main approaches of land suitability evaluation? (10 marks)

ii) Following are three terms which are often used in the land suitability evaluation process. What do you understand by each term? (20 marks)
   (1) Land characteristic
   (2) Land quality
   (3) Land utilization type

iii) The cost of a proper land suitability evaluation could account for a considerable portion of a project budget. Explain as to why such a high cost is involved. (25 marks)

4)

a)

i) What do you mean by "a map"? (3 marks)

ii) List the **Five** components in Geographical Information System. (GIS) (10 marks)

iii) List **two** main spatial data types used in GIS. (4 marks)

iv) What are the main sources of data for GIS? (15 marks)

v) Explain briefly how GIS could facilitate the **step 3 (Evaluation of opportunities)** of the land use planning process. (20 marks)

b)

i) Name **two** Global Navigation Satellite Systems (GNSS) (4 marks)

ii) Briefly explain following terms regarding the satellites positioning:
   (1) Orbit (5 marks)
   (2) Swath (5 marks)

iii) Explain the importance of polar orbit satellites in remote sensing process. (10 marks)

iv) Name **main two** sensor types used in remote sensing process. (4 marks)

v) What do you mean by **active remote sensing?** briefly explain its importance. (20 marks)

5) Use the attached research paper to answer the questions below. **Do not** write your answers on the research paper.

a) What is the main land utilization type considered in the evaluation? (10 marks)

b) What is the area where the study was carried out? (10 marks)

c) What are the main criteria/factors considered in the study/evaluation? (15 marks)

d) Indicate the method/s used to determine the suitability. (15 marks)

e) What are the means the authors have used to express or present different land suitability levels to the reader? (10 marks)

f) What are the land suitability classes used in the study? (10 marks)

g) Indicate five (5) maps used for the study? (15 marks)

h) If you wish to do a similar study in Sri Lanka, list the sources of information (institutions) that you can use for the data retrieval? (15 marks)

Examinations – Faculty of Agriculture, University of Ruhuna