



The Open University of Sri Lanka  
Faculty of Engineering Technology  
Industrial Studies Program  
Final Examination 2007  
**AEI 3235 Soil Land and soil tillage management**

Date : 22-04-2008  
Time : 0930 – 1230 hrs  
Duration : Three (03) hours

**SECTION 2**

Answer any four (4) questions. All questions carry equal marks.



- Q1. (a) Define the terms of soil bulk strength and soil clod strength?  
(b) Briefly describe a method to determine the relationship between soils deformation ( $\epsilon$ ) and shear stress ( $\tau$ ).  
(c) Write brief note on causes for the soil cohesion and friction?
- Q2. (a) Briefly explain how soil compaction affects the growth of a crop with suitable examples in agricultural fields in Sri Lanka?  
(b) Discuss the control of the “wheel traffic” as a management strategy of soil compaction?
- Q3. (a) Briefly discuss the two factors that have great importance in trafficability in a rice fields?  
(b) Write a brief summary on cultivation requirements in land preparation for rice Fields and the need for pre-germination of paddy seed?
- Q4. (a) “Natural ecosystems are highly diversified ecosystems than agro-ecosystems. Write a short essay on that?”  
(b) Discuss why energy utilization is greater in natural ecosystems compared with Agro-ecosystems?
- Q5. (a) Briefly discuss the role of organic matter content in the soil for better crop production.  
(b) Briefly describe how the conservation tillage (i.e. minimum or no tillage) systems encourage the good nutrient economy in the soil?
- Q6. Write short notes on three of the following topics.
- (a.) Kandyan forest gardens
  - (b.) Chena cultivation
  - (c.) Uses of harrowers as a secondary tillage implement
  - (d.) Importance of seed transplanting