



The Open University of Sri Lanka
Faculty of Engineering Technology
Final Examination 2005/2006
AEX4232/AED2212 Soil and water conservation

Date : 22-03-2006

Time : 0930-1230 hours

SECTION 2

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

1. (a) Briefly explain the term "infiltration capacity".
(b) Describe how infiltration capacity varies with respect to soil and rainfall characteristics
(c) How would land crop management help to control soil erosion?
2. Write an essay on "crop and vegetation management in conservation farming".
3. (a) How could the factors used in land capability classification be used as indicators of erosion risk assessment?
(b) Calculate the soil loss for a 4 ha catchment having the following characteristics.

Rf erosivity Index	= 300
Soil erodibility factor	= 0.5 t/ha/yr/R
Field slope	= 4%
Length of slope	= 300m
Conservation practice factor	= 0.5
Crop management factor	= 0.2

Where,

$$Ls = (\bar{L} / 22.13)^{1/2} (0.065 + 0.045S + 0.0065 S^2)$$

4. Write short notes on any four (04) of the following.
 - (a) Pedestal erosion
 - (b) Erosion control by good farming

- (c) Sediment transport by streams
 - (d) Rainwater harvesting and runoff agriculture
 - (e) State land and state forests encroachment.
5. (a) What are the agencies involved in implementing soil conservation practices in Sri Lanka?
- (b) Discuss the importance of Socio-economic aspects of soil conservation programs.
6. (a) Describe the importance of water conservation.
- (b) Workout the flow dimensions for a rectangular shaped channel whose flow velocity should not exceed 1.25 m/s. Channel needs to carry a flow of $2\text{m}^3/\text{s}$ and the bed gradient is 2%. Take Manning's roughness coefficient as 0.03.