

11 OCT 2014

EASTERN UNIVERSITY, SRI LANKA

THIRD YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE- 2011/2012

(Jan/Feb-2014)

AEN 3102 SOIL AND WATER CONSERVATION

(REPEAT)

Time: One hour

Answer all questions

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1. (a) List the problems caused by soil erosion.

(b) In an area, the following information is available in terms of soil erosion;

Rainfall erosivity index (R)	- 1200
Soil erodibility factor (K)	- 0.15
Field slope	- 6%
Slope length	- 200 ft
Crop type	- Cereals
Tillage method	- Fall plow
Support practice	- Up and down slope

Using the above data,

- i. Estimate the annual soil loss in this area.
- ii. If allowable soil loss is 4 tons/acre/year for this area, explain the management strategies to bring the annual soil loss below the allowable limit.

2. (a) What are the normal forms of water erosion?

(b) How does vegetation control soil erosion?

(b) Write a brief account on the climatic factors influencing soil erosion.

Note: Necessary tables are attached.

## Tables

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**Table 1: Crop Type Factor**

Crop type	Factor
Grain corn	0.40
Silage corn, beans & canola	0.50
Cereals (spring & winter)	0.35
Seasonal horticultural crops	0.50
Fruit trees	0.10
Hay and pasture	0.02

**Table 2: Tillage Method factor**

Tillage Method	Factor
Fall plow	1.0
Spring plow	0.90
Mulch tillage	0.60
Ridge tillage	0.35
Zone tillage	0.25
No-till	0.25

(C factor = Crop type factor × Tillage method factor)

**Table 3: P factor data**

Support Practice	P Factor
Up & down slope	1.0
Cross slope	0.75
Contour farming	0.50
Strip cropping, cross slope	0.37
Strip cropping, contour	0.25

**Table 4: LS factor calculation**

Slope Length: (ft)	Slope (%)	LS Factor
200	10	1.95
	8	1.41
	6	0.95
	5	0.76
	4	0.53
	3	0.39
	2	0.25
	1	0.16
	0	0.08