The Open University of Sri Lanka
Faculty of Engineering Technology
Bachelor of Industrial Studies Honors (Agriculture)
Final Examination – 2020/2021
AGX6490/AGX4532- Soil and Water Conservation

Date : 05-02-2022
Time : 14.00-17.00
Duration: Three (03) hours

SECTION II : Answer any **four** (04) questions. All questions carry equal marks.

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(1) (a) What is rain-splash erosion? Briefly discuss the factors affecting the direction and distance of soil splash.
(b) Briefly explain the term Erosivity and Erosivity Index (EI).
(c) Describe the methods estimation of Erosivity.

(2) (a) List each component of the Universal Soil Loss Equation.
(b) Calculate the soil loss for a field with the following characteristics.

Rainfall erosivity index = 300
Soil erodibility factor = 0.5 t/ha/yr
Field slope = 0.6%
Length of slope = 200 m
Conservation practice factor = 0.5
Crop Management factor = 0.3

(c) State the importance of modifying the Universal Soil Loss Equation when it is applying for other countries.

(3) (a) What is runoff co-efficient?
(b) In an area of 60 ha the rainfall intensity is 6.8 mm/hr. The runoff co-efficient is 0.45. Calculate the peak run off rate in SI units using the rational method.
(c) Explain three (03) characteristics which affect the runoff rate.

(4) (a) What are the mechanical soil conservation methods used in Sri Lanka?
(b) Name the important agencies involved in implementing soil conservation practises in Sri Lanka.

(c) Write an account on soil water conservation policies in Sri Lanka and state the importance of having a national water policy.

(5) (a) What is a landslide?
(b) Write a brief note on triggers of landslides.
(c) State some examples for the important landslides which occurred in Sri Lanka, their consequences on livelihood of affected community.

(6) Write short notes on any **three** (03) of the following.
(a) Wind erosion
(b) Onsite effects of soil erosion
(c) Minimum tillage
(d) The Froude Number (Fr)

End of Paper

5. (a). Briefly explain the different types of wells available in Sri Lanka and its advantages and disadvantages.

(b). A well in a confined aquifer of thickness of D is pumped at a rate of Q. Diameter of the well is r_0, water level in the well is h_0 and the height of rest water level is H above datum. Neglect well losses. Take hydraulic conductivity as k. Derive an expression for the height of water table at a distance from the centre of the well. Assume steady state conditions.

6.Write brief note on any three (03) of the following

(b) Sitting of rain gauge
(c) Infiltration indices
(d) Aquifer particle size analysis
(e) DRASTIC method

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