



KERALA AGRICULTURAL UNIVERSITY

B. Tech. (Agri. Engg) 2016 Admission

IV Semester Final Examination-July 2018

Lwre.2206

Soil and Water Conservation Engineering (2+1)

Marks: 50

Time: 2 hours

I Fill in the blanks. (10x1=10)

- 1index method was introduced by Hudson for estimating rainfall erosivity of tropical storms.
- 2bunds are constructed between two contour bunds to limit the horizontal spacing to the maximum required.
- 3 Stream channel erosion applied to theend of headwater tributaries.
- 4 The shelter belt is barrier than the wind break.
- 5gullies develop in the areas where the subsoil is resistant to erosion.

State True or False

- 6 Soil transportability increases with a decrease in particle size.
- 7 The USLE predicts soil loss resulting from all types of water erosion.
- 8 The rate of gully erosion depends mainly on the runoff producing characteristics of the watershed.
- 9 The fluid threshold velocity is the minimum velocity required to initiate movement from the impact of soil particles carried in saltation.
- 10 In most areas graded terraces are more effective in reducing erosion than runoff.

II Write short notes/answers etc on ANY FIVE (5x2=10)

- 1 What is erosion and state the agents of erosion?
- 2 State the process of gully development.
- 3 State applications of USLE.
- 4 What is erosivity and state the factors upon which it depends?
- 5 State the types of strip cropping and explain any one.
- 6 Explain how tillage practices help to control soil erosion.
- 7 Differentiate between saltation and suspension movement.

III Answer any FIVE of the following. (5x4=20)

- 1 Define water erosion and explain the types of water erosion.
- 2 Discuss briefly the classification of gullies.
- 3 Describe the EI₃₀ index method for computing the rainfall erosivity.
- 4 What is runoff plot? State and discuss the types of runoff plots.
- 5 State the principles of gully control and discuss its control by vegetative methods.
- 6 Explain wind erosion control measures.

P.T.O

- 7 Design a 250 m long graded bund in clayey soil having 2.5% land slope. Grade of bund for first 100 m is 0.1% and for the remaining 150 m it is 0.2 %. The VI is 1.6 m, rainfall intensity for the time of concentration and recurrence interval = 17.5 cm per hour, runoff coefficient = 0.3. Consider stable side slope as 1:1 and seepage line slope as 3:1.

IV Answer any ONE of the following. (1x10=10)

- 1 What is bench terracing? State its types and discuss the design of bench terracing.
- 2 Define grassed waterways and describe the factors affecting the shape of grassed waterways. Discuss the designing of most commonly adopted grassed waterways.
