

KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg.) 2015 Admission
IVth Semester Final Examination-July-2017

Cat. No: Lwre.2205

Title: Soil and Water Conservation Engineering (2+1)

Marks: 50

Time: 2 hours

I Fill up the blanks

1. ----- and ----- are two major soil erosion special problems. (10x1=10)
2. The major factors affecting erosion are -----, -----, ----- and -----
3. ----- is the most common form of channel erosion.
4. ----- is the commonly used formula in predicting peak runoff rate of small watersheds.
5. Water level in the stream is continuously recorded by -----
6. ----- is the most effective arrangement of crops for the reduction of soil erosion on crop land.
7. ----- is the most effective vegetative material for soil and water conservation and embankment stabilization.
8. ----- is one of the oldest mechanical methods of soil erosion control extensively used in India in the mountainous regions.
9. The potential ability of rain to cause erosion is called -----
10. ----- and ----- are the two main features of topography affecting erosion.

II Write short notes/answers to any FIVE of the following

(5x2=10)

1. What is shifting cultivation?
2. What is USLE?
3. Explain the different stages of gully developments and classification of gullies.
4. What is time of concentration? How it is estimated for a given watershed?
5. Explain wind breaks and shelter belts.
6. What is vegetated water ways? Explain the design procedure of a vegetated water ways
7. What is gully plugging?

III Write short answers to any FIVE

(5x4=20)

1. What are geo - textiles? Explain the suitability of geo - textiles for soil and water erosion.
2. Explain the various temporary gully control structures.
3. Explain the different types of terraces and step by step procedure of design of terraces.
4. Explain the different agronomic practices employed to control soil erosion.
5. Determine the velocity of flow and carrying capacity of a parabolic shaped grassed water way 50 cm deep and 4.5 m wide at the top. Slope of the channel bed is 2%. Assume Manning's coefficient as 0.03.
6. Make brief account of land use capability classification and land use planning.

IV Write essay on any ONE

(1x10=10)

1. Discuss the various types of water erosion and their effects?
2. Design a 150 m length bench terrace for a land having an average slope of 20%. The soil is clay loam. The terrace channel has a uniform grade of 0.5%. Maximum intensity of rainfall expected during the 10 year recurrence interval is 10 cm/hr (Assume the width of the terrace is 4.5m)
