B.Tech. Civil (Water Resources Engineering)
Term-End Examination

00615　　June, 2017

ET-537(A) : SOIL CONSERVATION AND AGRONOMY

Time : 3 hours　　　　　　　　*Maximum Marks : 70*

*Note : Answer any **seven** questions. All questions carry equal marks. Use of non-programmable scientific calculator is allowed.*

1. Explain Universal Soil Loss Equation (USLE). What are its strengths and limitations ? How can it be used beneficially for soil conservation ?　*10*

2. What are the different stages of gully erosion ? What are its control measures ? Is a bag of fertilizer more useful than a bag of cement ? If yes, at what stage ? Explain.　*10*

3. What is drainage coefficient ? Describe different methods of surface drainage.　*10*

4. Compute the size of 150 m long underground tile laterals placed 35 m apart in a longitudinal slope of 0·5 percent. Drainage coeffecient for the area is 4 cm/day. Manning's roughness coeffecient for tiles may be assumed as 0·01.　*10*

5. Explain the role of efficient water management in wheat crop production. Also explain the main diseases of wheat crop and their control measures. *10*

6. Describe the important steps in cultivation of sugarcane. What is ratooning ? What are the major diseases of sugarcane ? What are their control measures ? *10*

7. What causes soil alkalinity ? What are the determining factors for alkalinity ? Explain one important method to reclaim such soils. *10*

8. What are the major resources to be managed in a watershed ? How is monitoring and evaluation of watersheds done ? *10*

9. What are the different *in situ* rain water conservation practices ? Evaluate their merits and demerits. *10*

10. Write short notes on any *four* of the following : $4 \times 2\frac{1}{2} = 10$

   (a) Design of Culverts
   (b) Integrated Pest Management
   (c) Sprayers for Plant Protection
   (d) Measures for Salinity Control
   (e) Merits of Intercropping
   (f) Weather Vagaries and Agriculture

———