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ET-537(A)

01889

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2011

ET-537(A) : SOIL CONSERVATION AND AGRONOMY

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any seven** questions. Use of calculator is allowed. The answers shall be in your own language.*

1. Differentiate between mechanics of sheet and rill erosion. Calculate the total soil loss from a watershed of 100 ha in 10 years having the following indices/factors: L=2.41, S=1.20, C=0.12, P=0.30 R=5000, K=0.01ton/ha/year. Remark on extent of soil loss. **3+7**

2. Explain different factors affecting soil loss due to wind erosion. How do climatic factors affect differently the soil and loss due to wind and water erosion ? Explain role of mulching in controlling wind erosion. **4+3+3**

3. How does terracing help in controlling soil erosion ? In a region of North West Himalayas having 16 percent slope, which type of terrace should be made ? Give step - by - step design of the recommended terrace. **3+1+6**

4. Explain the situations that help initiating gullying. What factors affect the rate of gully erosion ? Write steps to design spillway of a check dam ? **2+3+5**

5. Make a labelled diagram of a straight drop spillway. Explain the functions of its different parts. Enumerate the benefits from a drop spillway over chute spillway. **4+4+2**

6. What are different components of a tile drain system ? What factors affect optimum tile depth of laterals ? Derive an expression for tile spacing assuming steady state condition. **2+3+5**

7. Explain cultivation of sugarcane specifying varieties, irrigation requirement, plant protection and planting methods. Name major sugarcane producing states in India. **9+1**

8. Explain in brief ***any four*** of the following : **4x2.5=10**

   (a) Farm mechanization

   (b) Organic farming

   (c) Plant protection in cotton

   (d) Ratoon crop management in sugarcane

   (e) Weed management in wheat crop

9. What are the basic criteria for selection, development, management, monitoring and evaluation of watershed. Explain with suitable examples. **10**

10. Explain the methods of rainwater harvesting in semi-arid and sub - humid areas. Substantiate your answers with some real examples. **10**