B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2010

01845

ET-537(A) : SOIL CONSERVATION AND AGRONOMY

Time : 3 hours   *Maximum Marks : 70*

Note : *Answer **any seven** questions. Use of calculator is allowed.*

1. Define cover manage factor and conservation **2+8**
    practice factor with respect to USLE. (universal
    soil loss equation) An area, with soil loss tolerances
    of 5 Mg/ha/yr, has actuall soil loss more.
    Calculate actual soil loss and suggest practices to
    arrest the soil loss. Given that $R = 5000$, $K = .01$,
    $L = 2.41$ $S = 1.17$ $C = 0.18$, $Pc = 06$, $Ps = 0.75$
    $Pt = 1.0$ Make suitable assumption, if require of.

2. Explain mechanics of wind erosion. Differentiate **10**
    among saltation, suspension and surface creep
    with the help of suitable sketches.

3. What are advantages of terracing ? Compare **10**
    broad based and bench terraces. Make labelled
    sketches of both.

4. What are different measures to control run off volume to gullies ? Describe temporary and permanent gully structures with their suitability, advantages and limitations. **10**

5. What are advantages of sub-surface drainage system over surface drainage system ? Briefly explain suitability and limitations of Mole drainage and drainage wells. **10**

6. Explain causes of water logging and salinity. What are the differences in approaches to reclaim alkali and saline soil ? Write one method of reclamation for each of the above two problematic soils. **10**

7. Explain the cultivation of cotton under the following headings : **10**
   * main varieties
   * irrigation requirement
   * insect and pest control
   * harvesting methods

8. Explain *any four* of the followings : **10**
   (a) Sheath blight
   (b) Pesticide formulation
   (c) 2, 4 - D
   (d) Mechanization of grain threshing
   (e) Integrated water management

9. How does watershed deterioration affect life of   **10**
    reservoir ? What are different steps in watershed
    management ?

10. Write short notes on *any four* of the followings :   **10**

    (a) Agro-forestry

    (b) Inter cropping

    (c) Rainfall aberrations

    (d) Conservation bench terracing

    (e) Topographical map

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