

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2013

**ET-537(A) : SOIL CONSERVATION AND
AGRONOMY**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. Use of calculator is allowed. The answer shall be in your own language.

1. Explain cover management and conservation practice factor w.r.t. Universal soil loss equation. If soil loss from an area is 11.5 Mg/ha per year where the soil loss tolerance is 5.5Mg/ha per year. Suggest suitable practices to achieve the goal. Given that $R = 5000$, $K = .01$, $L = 2.41$, $S = 1.17$, $C = .18$, $P_c = 0.6$, $P_s = 0.71$, $P_t = 1$ **4+6**
2. Which parts of India are badly affected by wind erosion ? How does wind erosion occur ? What are main differences among saltation, suspension and surface creep. **2+4+4**
3. Differentiate the roles of vegetative waterways and terracing in safe disposal of runoff. For an area having slope more than 20 percent, design a 150m long bench terrace. Assume uniform slope of 0.5% and peak run off of 25lps. **3+7**

4. Give the extent of gully erosion in our country. Discuss mechanism and causes of gully erosion. What are low cost methods to control gully erosion ? $2+3+5$
5. Differentiate between surface and sub-surface drainage. Discuss suitability, and limitations of Mole drainage and drainage well. Do you agree that irrigation and drainage are two faces of the same coin! Justify your answer ? $3+5+2$
6. Explain the following in detail : $5+5$
- (a) Leaching
 - (b) Biodrainage
7. Explain the cultivation of cotton w.r.t. following aspects : $4 \times 2.5 = 10$
- (a) Main varieties
 - (b) Water management
 - (c) Plant protection
 - (d) Harvest and post harvest operations
8. Write short notes on *any four* of the following :
- (a) Advantages of farm mechanization $4 \times 2.5 = 10$
 - (b) Pesticide formulation
 - (c) Integrated nutrient Management
 - (d) Drop spillways
 - (e) Sheath blight

9. Explain the importance of watershed management in India. What are the main steps in watershed management ? 5+5

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

- (a) Drought management 4x2.5=10
 - (b) Runoff harvesting
 - (c) Topographic map
 - (d) Agro forestry
 - (e) Rainfall operations
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