

**B.Tech. Civil (Water Resources Engineering)**

**Term-End Examination**

**June, 2017**

**00535**

**ET-531(B) : SOIL SCIENCE**

*Time : 3 hours*

*Maximum Marks : 70*

**Note :** *Attempt any five questions. All questions carry equal marks. Draw neat, labelled sketches wherever necessary.*

1. (a) Describe the two distinct steps of soil genesis. 7
- (b) Explain the Atterberg's limits of soil and their significance. 7
  
2. (a) Define the following : 7
  - (i) Field capacity
  - (ii) Permanent wilting point
- (b) Explain the various factors affecting reduction of evaporation from bare soil surface. 7

3. (a) What do you mean by carbon-nitrogen ratio ? Explain the various factors affecting carbon-nitrogen ratio and its significance. 7
- (b) Describe the basis of categorising a soil as alkali, saline and saline alkali. 7
4. (a) What are black cotton soils and how are they formed ? 7
- (b) Describe essential plant nutrients. Also discuss the basis for classifying a mineral nutrient to be primary, secondary or micro. 7
5. (a) Explain the symbols used in describing soil horizon and their respective meanings. 7
- (b) Describe the categories of the US system of soil taxonomic classification. 7
6. (a) Explain the stages in indirect land evaluation with the help of a schematic diagram. 7
- (b) Discuss the factors causing increased activity of earthworms in soil. 7
7. (a) Describe the various symptoms of plant disease. 7
- (b) Discuss the organic matter decomposition and formation of humic substances in soil with the help of a neat diagram. 7

8. Differentiate between the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Loss of water from Cropped and Uncropped land
  - (b) Active and Reserve Acidity
  - (c) Soil clays and Organic colloids
  - (d) Manures and Fertilisers
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