

**B.TECH. CIVIL (WATER RESOURCES  
ENGINEERING)**

**Term-End Examination, 2019**

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

**Time : 3 Hours]**

**[Maximum Marks : 70**

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**Note : Attempt any five questions. Support your answers with neat sketches. All the questions carry equal marks.**

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1. (a) Discuss the various factors affecting soil formation. [7]
- (b) What do you mean by Soil Structure ? Discuss the structural classification. [7]
2. (a) Explain three phase volume and mass relationship of soil with the help of a schematic diagram. [7]
- (b) Describe the laws governing fluid flow in soil. [7]
3. (a) Discuss the factors responsible for acidic soil formation. Write at least three effects of acidic soils. [7]

- (b) What are alluvial soils and how are they formed ? [7]
4. (a) List essential plant nutrients. Discuss the basis for classifying a mineral nutrient to be primary, secondary or micro. [7]
- (b) Describe the stages in Indirect Land Evaluation with the help of a schematic diagram. [7]
5. (a) Explain the symbols used in describing soil horizon and their respective meanings. [7]
- (b) Describe Symbiotic and Non-symbiotic nitrogen fixation in soils. [7]
6. (a) Explain the organic matter decomposition and formation of humic substances in soil with the help of a neat sketch. [7]
- (b) Describe at least seven symptoms of plant disease. [7]
7. Differentiate between the following : [4×3½]
- (a) Active and Reserve acidity
- (b) Red soil and Lateritic soil

(c) Manure and Fertiliser

(d) Gravitational and total hydraulic heads

8. Write short notes on the following : [4×3½]

(a) Soil colour

(b) Buffering

(c) Soil Morphology

(d) Carbon cycle

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