No. of Printed Pages : 2

ET-531(B)

00605

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

June, 2012

ET-531(B) : SOIL SCIENCE

Time : 3 hours *Maximum Marks : 70*

Note : *Answer **any five** questions.*
*All questions carry **equal** marks.*

---

1. (a) Differentiate between rocks and minerals with suitable examples. **5**

(b) Define Field capacity and permanent wilting point. Explain their use in frequency of irrigation and amount of irrigation water. **5**

(c) Define Particle Density (PD) and Bulk Density (BD). What are their applications ? **4**

2. (a) Define and elaborate the Soil-Plant-Atmosphere Continuum (SPAC). How does it help in plant growth ? Explain. **7**

(b) Explain the effect of cation exchange on soil properties and nutrient availability. **7**

3. (a) Explain the polarity of water. How is it important ? **7**

(b) Elaborate the characteristics of alluvial soil. Why is it good for Cultivation ? Explain. **7**

4. (a) What are the functions of Soil Bacteria ? Define symbiotic and non-symbiotic nitrogen fixation with suitable examples. 7

(b) Explain the mode of entry of pathogens in the plant body. What are the control measures for pathogens ? 7

5. (a) Define Integrated Nutrient Management (I N M) with suitable example. Also list its benefits. 7

(b) Describe the different processes exhibited by the soil colloids. How are soil colloids useful for soil health ? 7

6. (a) What is the difference between soil structure and soil texture ? Explain the factors affecting soil aggregates. 7

(b) Explain the methods to evaluate the soil fertility. List macro and micro nutrients of soil. 7

7. (a) Explain the Carbon cycle and Nitrogen cycles with the help of suitable illustrations. 7

(b) Define the Biofertilizers with suitable examples. Give a brief classification of the biofertilizers. 7