

B.Tech. Civil (Water Resources Engineering)

Term-End Examination

00818

June, 2016

ET-531(B) : SOIL SCIENCE

Time : 3 hours

Maximum Marks : 70

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

1. (a) Explain the basis of rock classification. Give the characteristics of different rocks. 7
- (b) Discuss soil morphology. Explain micro-morphological features of soil and soil horizons. 7
2. (a) What is soil aeration ? Explain the process of soil aeration and its effect on plant growth. 6
- (b) Define and differentiate particle density and bulk density. How is bulk density of soil determined ? 4

- (c) What is meant by mass wetness and volume wetness ? How is degree of saturation calculated ? 4
3. (a) What do you understand by infiltration ? Elaborate the role of infiltration in ground water recharge. Explain different methods of determining infiltration characteristics of soil. 7
- (b) Discuss the benefits of organic matter present in the soil. Explain, how soil organic matter can be quantified, and what are the factors influencing the status of organic matter in the soil. 7
4. (a) Give geological classification of the soil. List the major soil groups of India. Explain their formation process. 7
- (b) Write a detailed note on alluvial soils of India. 7
5. (a) What is meant by soil fertility ? Describe various diagnostic techniques used to assess the nutrient supplying capacity of the soil. 7
- (b) Distinguish between active and reserve acidity. Explain how active and reserve acidity can be neutralised. 7

6. (a) Discuss the process of detailed soil survey for delineating different soil units in a map. Explain the purpose of soil survey and mapping. 7
- (b) What are the essential components of soil taxonomy ? Discuss various soil moisture regimes. 7
7. (a) How does decomposition of cellulose take place under aerobic and anaerobic conditions ? 7
- (b) What are soil enzymes ? How are they produced ? What role does it play in the biological transformations in soil ? 7
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