

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

Term-End Examination

December, 2013

ET-531(B) : SOIL SCIENCE

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks. Give neat and well-labelled sketches where necessary.

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| (a) | Give the broad outline of composition of the following | 5 |
| | (i) Phases of the soil mass | |
| | (ii) Different rock formations | |
| (b) | With reference to chemical weathering, give the effect of water, and carbon dioxide on rocks. | 4 |
| (c) | What do you understand by bio-logical weathering ? Explain with examples. | 5 |
| (a) | Draw a definition sketch of a soil pedon. | 5 |
| (b) | Explain the characterisation of a soil profile; soil horizons; and soil micromorphology. | 9 |

Explain the following : 14

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| (a) | Organic colloids, and inorganic colloids | |
| (b) | Ion Exchange phenomena. | |

Discuss in detail Diagnostic Horizons, and Diagnostic Features. 14

5. (a) Explain soil macroflora and soil microflora
(b) Give the outline of the process involved in the following :
(i) Nitrogen fixing bacterial action.
(ii) Nitrogen transforming bacterial action.
6. Explain in detail :
(a) Soil actinomycetes,
(b) Soil algae,
(c) Soil fauna (macro and micro), and
(d) Soil viruses
7. Write short notes on **any four** of the following :
(a) Carbon cycle
(b) Symbiotic nitrogen fixation
(c) Buffering
(d) Plant disease symptoms
(e) Red soils
(f) Soil fertility evaluation
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