

Government College of Engineering, Aurangabad
(An Autonomous Institute of Government of Maharashtra)
M.E. (Civil – Soil) P.T. Examination
End Semester Examination 2016 Semester-I
CE 528: SOIL PHYSICS AND CLAY MINERALOGY

2 DEC 2016

Maximum Marks-60

Time- Three Hours

“Verify the course code and check whether you have got the correct question paper.”

N.B:- 1) All questions are compulsory

2) Figures to the right indicate full marks

3) Assume any additional data, if necessary and state it clearly

- Q.1. Answer any two of the following, (12)
- [a] Explain in detail soil as a disperse system; describe any laboratory test to identify dispersive clays.
 - [b] Write in depth about the change in physical behavior of clay with inclusion of water.
 - [c] Write a length on soil consistency, which physical tests are being followed to define the consistency of the clays.
- Q.2. Answer any two of the following, (12)
- [a] Write a detailed note on soil formation, which environmental parameters influences the formation of soil?
 - [b] Write a note on composition of soil air.
 - [c] What is air capacity of the soil? Which types of soil possess higher air capacity and why?.
- Q.3. Answer any two of the following, (12)
- [a] What is tillage? How physical behavior of soil is related to tillage?
 - [b] What is soil drainage? How it is related to groundwater levels?
 - [c] Describe the kaolinite mineral, how the charges are distributed in its structure?
- Q.4. Answer any two of the following, (12)
- [a] Write a length on Allophane minerals.
 - [b] What is Anauxite structure? How it differs from kaolinite structure?
 - [c] What is the structural composition and charge distribution of Illite mineral?
- Q.5. Answer any two of the following, (12)
- [a] Describe in detail the procedures involved in X-Ray diffraction test on clay minerals.
 - [b] Explain montmorillonite mineral with their X-Ray diffraction data
 - [c] What is cation exchange capacity? What influence it has on physical behavior of soil?