

BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY
Question Bank (I-Scheme)

Name of subject: Geotechnical Engineering

Unit Test :I

Subject code: 22404

Course : CE
Semester: III

CHAPTER 1 (Overview of Geology and geotechnical engineering)

2 Marks

- a. Define Geology and state its branches.
- b. define soil as per IS:2809-1972.
- c. state the objectives of Geotechnical engineering .
- d. state the importance of geology in civil engineering.
- e. define weathering of rocks .

4 Marks

- a) State classification of rocks based on their origin
- b) State field applications of geotechnical engineering
- c) Explain the use of soil as a foundation material
- d) State any four applications of soil as construction material and foundation material .

CHAPTER 2 (Physical and Index Properties of soil)

2 Marks

- a. Define void ratio and Porosity.
- b. Define degree of saturation and water content
- c. Define dry unit weight and saturated unit weight
- d. define specific Gravity and density Index

4 Marks

- a. Explain Three phase system of soil .
- b. Explain the Atterberg's limits

- c. Explain measuring of field density and moisture content by core cutter method
- d. write the laboratory procedure of determining plastic limit of soil .
- e. write step by step procedure to determine specific gravity of soil by pycnometer method .
- f. Explain laboratory procedure for mechanical sieve analysis of soil .
- g. Explain the procedure of determine of liquid limit of soil
- h) Draw particle size distribution curve. Explain grading of soil with sketch
- I Explain practical procedure for determining water content by oven drying method
- J draw neat labelled sketch to explain stepwise procedure to determine bulk density by sand replacement method
- K calculate void ratio, porosity, and degree of saturation of soil mass of bulk density 1.76 specific gravity of soil grains 2.7 and water content as 30%
- L state field identification tests on soil and explain any one
- M define plasticity index , liquidity index , shrinkage index , flow index, Toughness index

CHAPTER 3 (Permeability and shear strength of soil)

2 Marks

- a. Define Permeability

.

3 Marks

- a. State Darcy's law of permeability
- b. Enlist factors affecting permeability
- c. Write step by step procedure to determine coefficient of permeability of fine grained soil by falling head method in laboratory
- d. Write step by step procedure to determine coefficient of permeability of fine grained soil by constant head method in laboratory
- e. Explain phreatic line in earthen dam with sketch
- f. Factors affecting shear strength of soil
- g. Factors affecting permeability of soil

.....