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220744

4th Sem / Civil

Subject : Soil Mechanics and Foundation Engineering

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Black cotton soil chiefly contains clay mineral
a) Illite b) Kaolinite
c) Montmorillonite d) None of these
- Q.2 Maximum size of clay particles is
a) 0.002 mm b) 0.04 mm
c) 0-06 mm d) 0-001 mm
- Q.3 Core cutter method is suitable only for
a) Sand b) soft cohesive soils
c) None of the above d) All types of soils
- Q.4 The effective stress controls the following properties of soil:
a) Shear strength b) Compressibility
c) Permeability d) All above

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Q.5 In modified Proctor Test, the weight of rammer is

- a) 4.89 b) 2.6 kg
c) 2.0 kg d) 3.6 kg

Q.6 In a shear box test the failure plane is

- a) Weakest plane b) vertical plane
c) Horizontal plane d) major principal plane

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 For determining water content, temperature of oven is maintained at _____
- Q.8 Coefficient of permeability of soil _____ with increase in temperature
- Q.9 Darcy's law is valid for _____ type of flow.
- Q.10 Sheep foot rollers are suitable for compacting _____ soils.
- Q.11 Terzaghi's analysis is valid for _____ foundation.
- Q.12 Total stress defined as the sum of _____.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 How soil is formed? Explain the process of physical disintegration and chemical decomposition of rocks.

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- Q.14 Bulk density of a clay sample was found to be 1.0 gm/c.c. Water content was 20% Determine void ratio and degree of saturation Take $G = 2.68$.
- Q.15 Write a note on plasticity chart.
- Q.16 Define Isobar and pressure bulb.
- Q.17 Which are the various factors affecting permeability of soil? Discuss each briefly.
- Q.18 Define Consolidation and its Types.
- Q.19 Define Shear strength of soil and its significance.
- Q.20 Explain types of shallow foundations with diagram.
- Q.21 Define disturbed and undisturbed samples. State their significance.
- Q.22 Discuss the methods of improving bearing capacity of soils.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Explain the plate load test to find out ultimate bearing capacity of soils. State its limitations.
- Q.24 What is well foundations? Give its necessity. Explain & show various components of well foundation and its different shapes used with the help of diagram.
- Q.25 Explain Constant head Permeability Method with neat & clean diagram.