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220744

4th Sem / Civil Engineering

Subject : Soil Mechanics & Foundation Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 The fundamental equation of Void ratio (e), Specific gravity (G) Water content (w) and Degree of saturation (S) is

a) e=wGS b) e=wG/S

c) G=ew/S d) S=ew/G

Q.2 Constant head permeability test is preferable when soil sample is :-

a) Sandy b) Clayey

c) Silty sand d) Sandy grovels

Q.3 Effective stress is also known as

a) Principal stress b) Pore pressure

c) Intergranular stress d) None of these

Q.4 The ratio of theoretical length of recovered sample to the actual length of recovered sample is called

a) Length ratio b) Recovery ratio

c) Area ratio d) None of these

Q.5 For=$\Phi = 0$, Nc valve according to Terzaghi is

a) 9.5 b) 5.14

c) 5.7 d) 5.52

Q.6 Area ratio for soft sensitive clay soil is

a) <10 % b) >10 %

c) <20 % d) >20 %

SECTION-B

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

Q.7 A constant head permeameter is used for_____grained soils.

Q.8 Darcy's law is valid for turbulent flow. (True/False)

Q.9 A well graded soil has coefficient of curvature between _____

Q.10 In direct shear test, the measurement of pore water pressure is_____

Q.11 Unit of permeability expressed in _____

Q.12 Quick condition does not occur in _____deposits.

SECTION-C

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

Q.13 Discuss the origin of soils with reference to geological cycle.

Q.14 Establish relation between void ratio and porosity.

Q.15 Explain quick sand phenomenon.

Q.16 Define coulomb's law? Also draw diagramatic representation of columb's law.

Q.17 Define area ratio and recovery ratio. What is their engineering importance?

Q.18 Calculate Void Ratio and Porosity of a saturated Soil Sample having water content of 40 % . Take G=2.7

Q.19 What is the importance of effective stress in engineering problems?

Q.20 Define compaction. What is the difference between compaction and consolidation?

Q.21 Define well foundation. Explain its necessity.

Q.22 Explain the plate load test to find out ultimate bearing capacity of soils.

SECTION-D

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

Q.23 Calculate the void ratio, porosity, degree of saturation of a given sample of soil if it is having wet density 2.1 gm/cc and dry density 1.85 gm/cc Take G=2.69

Q.24 Explain the standard proctor Test used for determining the optimum Moisture content and maximum dry density of soil under normal compaction.

Q.25 Explain falling head permeability Methods with neat & clean diagram.