No. of Printed Pages : 4
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180745

4th Sem. / CIVIL
Subject : Soil Mechanics & Foundation Engg.

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (10x1=10)

Q.1 "Talus" s the soil transported by

a) Wind b) Water
c) Glacier d) Gravitational force

Q.2 The fundamental relation between e,G,w and S is

a) E= wGS b) G=ew/S
c) eS=wG d) None

Q.3 Hydrometer analysis is appropriate for

a) Silt and Clay b) Sand and Gravel
c) Peat d) All soil

Q.4 The hydraulic gradient (i) is given by

a) hLA b) L/h
c) h/L d) None

Q.5 Effective stress is also knows as

a) Principle stress b) Pore pressure
c) Inter granular stress d) None

Q.6 Relationship for coefficient of consolidation is

a) $C_v = TH^2/t$ b) $C_v = Th^2/T$
c) $C_v = Tt/H^2$ d) $C_v = H^2/Tt$

Q.7 On wetting, cohesive soils,

a) Loose permeability b) Gain shear strength
c) Loose elasticity d) Decrease shear strength

Q.8 The rammer used in light standards proctor test is of weight

a) 4.80 kg b) 2.0 kg
c) 2.6 kg d) 3.6 kg

Q.9 The maximum size of plate for plate load test is

a) 30 cm^2 b) 45 cm^2
c) 60cm^2 d) 75cm^2

Q.10 Which is not an engineering property of soil

a) Shear strength b) Compressibility
c) Permeability d) Grain size

Section-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Silt is _____ grained soil.

Q.12 The ratio of volume of void to the volume of solid is called_____.

Q.13 The ratio of D_{60} to D_{10} is called_____.

Q.14 The coefficient of permeability is expressed in _____.

Q.15 Quick condition does not occur in _____deposits.

Q.16 Clay is highly compressible soil. (True/False)

Q.17 Soils in the field are subjected to direct shear stresses. (True/False)

Q.18 Compaction and consolidation are the same process. (True/False)

Q.19 If the N value for the soil is more, the soil is termed as loose. (True/False)

Q.20 Thin tube samplers give cylindrical samples. (True/False)

Section-C

Note: Short answer type Question. Attempt any twelve questions out of fifteen Questions. (12x5=60)

Q.21 What are the properties of black cotton soil?

Q.22 Explain the difference between three phase diagram and two phase diagram.

Q.23 If void ratio is 0.67 water content is 0.1888, specific gravity is 2.68, calculate degree of saturation.

Q.24 Define Atterberg's limits. Explain their use and practical significance.

Q25 Explain Darcy's law and give its limitations.

Q.26 Calculate the coefficient of permeability of a soil sample, 6 cm in height and 60cm^2 in cross sectional area, if the quantity of water equal to 500 ml passed down in 8 minutes, under a constant head of 30 cm. Convert it into meter/day.

Q.27 Explain the concept of principle of effective stress.

Q.28 Define swelling, creep, heaving and plastic flow.

Q.29 Differentiate direct shear test and triaxial shear test.

Q.30 IN consolidation test, whet the load is changed from 50KN/m^2 to 100 KN/m^2, then the void ratio changes from 0.80 to 0.60. What will be the value of compressibility?

Q.31 What are sand drains? How the installation of drains results in soil compaction.

Q.32 a) Define isobar and pressure bulb

b) Give the concept of vertical stress distribution in soils

Q.33 Write a short note on overburden pressure correction.

Q.34 What are the advantages and disadvantaged of box caissons?

Q.35 Differentiate between end bearing piles and friction piles.

Section-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x10=20)

Q.36 Explain the particle size distribution curve and its charcteristics features.

Q.37 Describe the applications of SPT test in the estimation of bearing capacity of soil.

Q.38 What is the purpose of soil Exploration? Explain the use of auger boring in soil exploration.