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Roll No. .....

5th Sem / Civil., Constr. Mgmt, Civil Engg

(Spl Highway Engg)

Subject:- Soil Mechanics and Foundation Engineering / Soil & Found. Engg

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 Which of the following is not water formed transported soil: (CO1)

a) Alluvial b) Marine
c) Leoss d) Lacustrine

Q.2 Accurate method of determing water content of soil sample is: (CO2)

a) sand bath method
b) alcohol method
c) calcium carbide method
d) over drying method

Q.3 The minimum water content at which soil just begins to crumble when rolled into 3 mm dia thread is: (CO3)

a) Permeability limit b) Shrinkage limit
c) plastic limit d) consistency limit

Q.4 Unit of coefficient of permeability is: (CO4)

a) cm b) sec/cm
c) gram/cm^3 d) cm/sec

Q.5 The stress which is effective in decreasing the void ratio of soil mass is: (CO5)

a) total stress b) neutral stress
c) effective stress d) special stress

Q.29 How Plate load test is conducted? Explain briefly. (CO9)

Q.30 How we can improve the bearing capacity of soils? Give any five methods. (CO9)

Q.31 Define soil exploration. Write the purpose of soil exploration ? (CO10)

Q.32 Write the various precautions to be observed while conducting Standard Penetration Test (SPT)? (CO10)

Q.33 In which conditions we have to provide pile foundation? Explain. (CO11)

Q.34 What are the various elements of well foundation? Explain with sketches. (CO11)

Q.35 Write note on the importance of effective stress in engineering problems? (CO5)

SECTION-D

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

Q.36 i) Explain the unconfined compression test for finding shear strength of the cohesive soils.

ii) How specimen is prepared for unconfined compression test? Explain (CO7)

Q.37 i) How disturbed and undisturbed samples are collected in the field? Also give three examples of it

ii) Explain thin wall and piston samples with sketches. (CO10)

Q.38 Explain with neat sketches the classification of piles based on method of installation. (CO11)

(**Note:** Course outcome/CO is for office use only)

Q.6 Soil not fully consolidated under the existing overburden pressure is called: (CO6)

a) pre-consolidated b) normally consolidated
c) over-consolidated d) under-consolidated

Q.7 Drainage conditions during test can be controlled best in: (CO7)

a) direct Shear text
b) vane shear test
c) unconfined compression test
d) triaxial shear test

Q.8 The rammer used in light standard Proctor Test is of weight: (CO8)

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

Q.9 The maximum pressure which a soil can carry without shear failure is called: (CO9)

a) safe during capacity
b) net safe bearing capacity
c) net ultimate bearing capacity
d) ultimate bearing capacity

Q.10 If the thickness of sampling tube is increased the disturbance of the sample will: (CO10)

a) increase b) decrease
c) not affected d) none of the above

SECTION-B

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

Q.11 Soil are formed by the weathering of_____ (CO1)

Q.12 Ratio of volume of water in a given soil mass to the volume of void is called _____ (CO2)

Q.13 The ratio of D_{60} to D_{10} is called_____ (CO3)

Q.14 Clay is termed as_____ in terms of permeability. (CO4)

Q.15 The total stress acting on a soil mass is equal to the sum of inter-granular stress and_____ (CO5)

Q.16 The upward movement of soil is_____ (CO6)

Q.17 Soils in the field are subjected to direct shear stresses. (True/False) (CO7)

Q.18 Core-cutter method is used to calculate_____ of soil. (CO8)

Q.19 When the water table rises below the foundation, the bearing capacity of soil increases. (True/False) (CO9)

Q.20 The samples should be labelled in order to avoid mixing of the samples.(True/False) (CO10)

SECTION-C

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

Q.21 What is black cotton soil? Write note on limitations as an engineering material? (CO1)

Q.22 Write that e.s = w G. (CO2)

Q.23 Write the importance of particle size analysis? (CO3)

Q.24 Explain Darcy's Law and give its limitations. (CO4)

Q.25 What is Plasticity Chart? Enlist its importance features. (CO3)

Q.26 What are the different causes of settlement? Explain (CO6)

Q.27 What are the different drainage conditions for calculating shear strength test of soils in laboratory? Explain. (CO7)

Q.28 Explain core-cutter method to determine density of soil in field. (CO8)