

SUBJECT CODE NO:- P-264
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(Civil) Examination May/June 2017
Geotechnical Engineering
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Solve three questions from section A including Q.No.1 which is compulsory, from section B Solve three questions including Q.No.6 which is compulsory.
 - ii) Assume suitable data if necessary.
 - iii) Figure to the right indicates full marks.

Section A

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|-----|---|----|
| Q.1 | a) Differentiate between compaction and consolidation. | 04 |
| | b) Sketch the plasticity chart. Explain its use in engineering classification of fine grained soils with reference to I.S classification of system. | 06 |
| | c) Explain the procedure of determination of specific gravity by pycnometer method. | 06 |
| Q.2 | a) Explain
1. honeycomb structure
2. flocculent structure | 06 |
| | b) Derive the equation for square root of time fitting method with a sketch. | 06 |
| Q.3 | a) Derive the expression for coefficient of permeability of coarse grained soils using constant head method. | 06 |
| | b) Write a note on field compaction methods. | 06 |
| Q.4 | a) Explain the graphical method of flow net construction. What are the properties of flow net? | 06 |
| | b) Explain highway research board classification of soils. | 06 |
| Q.5 | Write a short note on:
a. Effective and neutral pressure
b. Laboratory consolidation test.
c. Proctor needle method. | 12 |

Section B

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|-----|---|----|
| Q.6 | a. Explain the stability of downstream slope of earthdam during steady seepage | 06 |
| | b. Explain the consolidation process with piston and spring analogy. | 06 |
| | c. What are the advantages of triaxial test? | 04 |
| Q.7 | a. Differentiate between finite and infinite slope. | 06 |
| | b. Explain direct shear test to find the shear strength parameter of the soil. | 06 |
| Q.8 | a. With usual notations for rare shear test, prove that
$\tau = \pi d^2 \rho g \left(\frac{H}{2} + \frac{d}{6} \right)$ | 06 |
| | b. Explain Swedish circle method. | 06 |

- Q.9 a. Explain stress isobars with the help of sketch. 06
b. Explain the procedure of determination of unconfined compressive strength of soil mass of clayey soil 06
- Q.10 Write short note on : 12
a. Taylors stability number
b. Active earth pressure
c. Mohr- coulomb failure theory.