



**Code: 9D12101**

**M.Tech I Semester Supplementary Examinations August 2016**

**ADVANCED SOIL MECHANICS**

(Geotechnical Engineering)

(For students admitted in 2012, 2013, 2014 & 2015 only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) What are the different types of clay minerals and explain in detail.  
(b) Describe the methods of clay minerals identification.
- 2 What is meant by free swell index and explain how swelling pressure is determined by conducting Oedometer test.
- 3 Write notes on flow net construction for earth dams.
- 4 (a) Describe pore pressure parameters.  
(b) What are the factors affecting shear strength of cohesive and cohesion less soils?
- 5 (a) Explain stress path in detail.  
(b) What are the different types of liquefaction and explain mitigation methods to minimize the liquefaction.
- 6 Explain the shear strength of granular soils under plain strain condition. Give a simple correlation to obtain friction angle.
- 7 (a) Describe the method of calculation of immediate settlement in granular soil by simplified strain influence factor.  
(b) What is the role of precompression for improving foundation soils?
- 8 (a) Differentiate between original and revised Mohr-Coulomb equations. Also derive a relationship between the principal stresses at failure using Mohr-Coulomb failure criterion.  
(b) What are the merits and demerits of triaxial test?

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