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M. Tech. I-Sem. (Main) Exam., Dec. - 2018

Geotechnical Engineering

1MGE3 Rock Engineering

Time: 3 Hours

Maximum Marks: 100

Min. Passing Marks: 33

Instructions to Candidates:

*Attempt any **five** questions. Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever necessary to clearly illustrate your answer. Assume missing data suitable if any and specify the same. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)*

1. NIL

2. NIL

Q.1 (A) What is Dilation? [5]

(B) Discuss Singh and Rao criteria for strength of Rocks in unconfined conditions. [10]

(C) Differentiate between Porosity & Permeability. [5]

Q.2 Write short note- [4×5=20]

(a) RMR classification

(b) State the factors affecting strength of Rock mass

(c) Rock grouting

(d) Jointed Rocks

Q.3 (A) What do you understand by the term 'Rock Bolting'? Also discuss its mechanism. [10]

(B) In what way grouting will improve Rock's properties? [10]

- Q.4 (A) How does Information about Elasticity and Plasticity of a rock mass help in designing structures over them? [12]
(B) How tunnel size can effect support pressure? [8]
- Q.5 (A) State all the Engineering properties of Rocks? Discuss any one in detail. [12]
(B) Explain Uniaxial compressive strength. [8]
- Q.6 (A) Discuss In – situ shear tests. [10]
(B) Explain Terzaghi's classification of Rocks. [10]
- Q.7 (A) What is the necessity of In – situ tests? [5]
(B) State the tests for Internal stresses. [5]
(C) Discuss Plate Load test. [10]
- Q.8 (A) Identity & Describe the limitations of 'Hock and Brown Criteria'? [10]
(B) Define Bearing Capacity of Rocks? Also state related methodologies. [10]
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