Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

MVSE-301(E)

M.E./M.Tech., III Semester

Examination, December 2016

Rock Mechanics and Foundation Engineering

(Elective-I)

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Describe the formation of Igneous and Metamorphic rocks. 7
   b) Compare the static and dynamic properties of rocks. 7

2. a) Give engineering classification of intact rocks. 7
   b) Discuss various factors which affect the in-situ state of stress of rocks. 7

3. a) Describe various modes of failure of rocks. 7
   b) Discuss stress strain curve of rocks. 7

4. Describe the Griffith theory and Murrel modification. 14

5. a) Explain the following: 7
   i) Toughness and resilience properties of rock
   ii) Behaviour of discontinuous roc mass

   b) What are the various tests for the determination of strength of rocks? Explain ring shear test in detail. 7

6. a) Describe the design procedure of spread foundation. 7
   b) Describe the construction of open caisson. 7

7. a) Write the design criteria for foundation of Reciprocating machines. 7
   b) Define the following: 7
   i) Degree of freedom
   ii) Free vibration
   iii) Damping
   iv) Natural frequency

8. Write short notes on the following: 14
   a) FEM approach
   b) Rock mechanics
   c) Control of fracture in rock structure
   d) Various modes of failure of rocks
   e) Grouting in rocks
   f) Types of machine foundations
   g) Pneumatic Caisson

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