SE491

Total No. of Printed Pages:1

S.E.(Mining) Semester- IV (Revised Course 2007-08)
EXAMINATION Nov/Dec 2019
Rock Mechanics & Ground Control - I

[Duration : Three Hours] **[Total Marks : 100]**

Instructions:
1) Answer any **five** questions selecting at least one question from each module.
2) Make suitable assumptions if required and state them clearly.
3) Supplement your answers with neat sketches wherever required.
4) All symbols and abbreviations have their usual meaning.

Module – 1

1. a) What do you understand by rock mechanics? Write its application in mining. **(8)**
b) Write a note on constraints in rock mechanics application. **(6)**
c) What is principal stress? And its application in rock mechanics. **(6)**

2. a) Draw complete stress-strain curve and explain its various parameters. **(8)**
b) Draw Mohr's circle of stress and describe all terms. Write its some application. **(12)**

Module – 2

3. a) What is Rock Mass Classification System? **(5)**
b) Write in detail about RMR Classification System. **(15)**

4. a) What is the durability of rocks? Briefly, explain about slake durability index test in the laboratory. **(10)**
b) Describe the different type of physical properties of rocks. **(10)**

Module – 3

5. a) What is rheology? And explain the various type of rheological model in detail. **(10)**
b) What do you mean by rock failure theory? Describe Hoek and Brown rock failure theory. **(10)**

6. a) Explain the dynamic method of determination of elastic constants by Ultrasonic Method. **(8)**
b) Briefly explain the Compressive strength of rock? Describe any one experimental method of determination for compressive strength of rocks. **(12)**

Module – 4

7. a) What is slope failure? Describe different types of slope failure with neat sketch. **(12)**
b) Write a note on various type of slope stabilization techniques. **(8)**

8. a) Explain parameters affecting the overburden dump stability. **(12)**
b) What is the monitoring system for dump stability? **(8)**

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