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10MN65

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020

Rock Mechanics

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Define Rock Mechanics and explain the scope and importance of it. **(10 Marks)**
b. Explain in detail in Barton's shear strength of joints. **(10 Marks)**

2 a. Explain two dimensional stress in a plane with a neat sketch. **(08 Marks)**
b. Explain with a neat sketch procedure to draw Mohr's circle of stress. **(12 Marks)**

3 a. Explain in detail with a neat graph the elasto-plastic behavior of the rock. **(10 Marks)**
b. Write the equations of compatibility and explain the procedure to derive the same. **(10 Marks)**

4 Explain in detail the following properties of rocks along with its equation:
a. Density
b. Hardness
c. Porosity
d. Moisture content **(20 Marks)**

PART – B

5 Explain in detail the following mechanical properties:
a. Creep of rock
b. RQD
c. Point load strength index
d. Shear strength of rock **(20 Marks)**

6 a. Differentiate between Insitue and laboratory testing of rocks. **(08 Marks)**
b. Explain in detail the procedure for determine the Insitue stress using flat jack method in rockmass. **(12 Marks)**

7 a. Differentiate between simple and complex rheological models. **(08 Marks)**
b. Explain in detail the following rheological models:
i) Maxwell's model
ii) St. Venent's model **(12 Marks)**

8 a. Explain in detail the various static modulus of rocks. **(10 Marks)**
b. Explain in detail the method of measurement of deformation convergence of tunnel. **(10 Marks)**

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