USN | | | | | | | | | | |

10MN72

Seventh Semester B.E. Degree Examination, Aug./Sept.2020
Ground Control

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Explain excavator design and constraints in underground excavation. **(10 Marks)**

b. Explain in detail the influence of time and water on stress behavior of rock mass. **(10 Marks)**

2 a. Draw a neat sketch of subsidence profile and name the important elements of subsidence. **(08 Marks)**

b. Explain the various methods of preventive measures adopted due to the effect of subsidence. **(12 Marks)**

3 Explain in detail the following methods of underground stowing:
i) Hydraulic stowing method
ii) Pneumatic stowing method **(20 Marks)**

4 a. Differentiate between Premining and Induced Stresses in U/G excavator. **(10 Marks)**

b. Differentiate between Finite Element Method and Boundary Element Method. **(10 Marks)**

PART – B

5 Explain in detail the following rockmass classifications:
(i) RQD
(ii) RMR **(20 Marks)**

6 a. Explain in detail the rock structure interaction curve due to underground excavation. **(10 Marks)**

b. Differentiate between passive and active support system with examples. **(10 Marks)**

7 a. Explain in detail the load cell used to measure the stress in rockmass with a neat sketch. **(10 Marks)**

b. Explain with a neat sketch the method of measuring deformation in underground excavation. **(10 Marks)**

8 Explain the causes and preventive measure of coal bumps. **(20 Marks)**

* * * * *