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10MN72

Seventh Semester B.E. Degree Examination, Dec.2018/Jan.2019
Ground Control

Time: 3 hrs.

Max. Marks: 100

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

PART – A

- 1 a. Explain the different types of underground excavation based in the Barton and Lieu and support cost required for the same. (08 Marks)
- b. Interpret the influence of cohesion and internal friction angle in case of Columb – Navier and Mohr’s Columb theory. (12 Marks)
- 2 a. Explain the process of Monitoring and measuring of subsidence. (10 Marks)
- b. Explain the factors affecting the subsidence and what are its preventive measures. (10 Marks)
- 3 a. Explain the process of Re – inforcement of mine fills. (10 Marks)
- b. Explain the process of Auto consolidated rock fill in underground mine. (10 Marks)
- 4 a. Draw and explain the stress concentration around the multiple opening (circular) in a uniaxial stress condition. (14 Marks)
 - i) If the vertical stress is zero and horizontal stress maximum.
 - ii) If the vertical stress is maximum and horizontal stress is zero.
 What happens if the confining pressure around the opening is equal to 0 , 1 and ½.
- b. Explain the source and estimation of insitu stress in underground excavation. (06 Marks)

PART – B

- 5 a. Explain Rock mass rating and how to use the RMR for supporting the underground structure. Interpret the importance of Modified/Mining Rock Mass Rating. (10 Marks)
- b. Explain Rock structure rating and how to use the RSR for supporting the underground structure. (10 Marks)
- 6 a. Explain the Crib – set support with load deformation curve or compression – resistance curve and stress – strain curve. (10 Marks)
- b. Draw the different support pattern of roof bolting used for stratified roof and explain the same. (10 Marks)
- 7 a. Explain the types of load – measuring devices used for field instrumentation in underground. (10 Marks)
- b. Explain the types of deformation – measuring devices used for field instrumentation in underground. (10 Marks)
- 8 a. Comment on the prevention and predictions to be adopted for coal bump / rock burst. (10 Marks)
- b. Explain the mechanism and causes of bump in underground mine. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.