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Third Semester B.E. Degree Examination, July/August 2021 Drilling and Blasting

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions.

- 1
 - a. Describe various types of angle drills used for exploration purpose and also mention their applicability conditions. (08 Marks)
 - b. Describe construction and working of cable tool drill with neat sketch. (06 Marks)
 - c. Describe working of Odex drill with its advantages and application. (06 Marks)
- 2
 - a. Explain core recovery using various types of core barrels. (12 Marks)
 - b. Describe briefly the procedure for storing drill core. (08 Marks)
- 3
 - a. Explain working principle of rotary percussive drilling. (10 Marks)
 - b. Draw a sketch showing components of a down the hole drilling rig and explain its functioning. (10 Marks)
- 4
 - a. Describe constructional and working details of a water jet drilling. (10 Marks)
 - b. Describe working principle of airlegs, chainfeed and hydraulic feeds that are used as advance systems to obtain high performance from the drills. (10 Marks)
- 5
 - a. What are the basic compositions of a commercial explosive? (05 Marks)
 - b. Identify and explain properties of an explosive that are of interest to its user. (12 Marks)
 - c. Compare low explosives with high explosives. (03 Marks)
- 6

Describe physical properties, chemical composition and application of the following explosives.

 - a) Slurry Explosives (07 Marks)
 - b) ANFO (07 Marks)
 - c) Emulsion explosives. (06 Marks)
- 7
 - a. Explain mechanics of rock fragmentation by blasting. (12 Marks)
 - b. Identify and explain the factors that influence the efficiency of blasting. (08 Marks)
- 8
 - a. Explain briefly the mechanics of rotary and percussive drilling. (10 Marks)
 - b. Identify and explain the factors and parameters that affect the selection of drills. (10 Marks)
- 9
 - a. Identify and explain various blasting cuts used in underground coal mines. (10 Marks)
 - b. Describe a blasting practice that is used in underground coal mines without giving an under cut. (10 Marks)
- 10
 - a. Describe long hole blasting with neat sketch. (10 Marks)
 - b. Describe vertical crater retreat blasting with neat sketch. (10 Marks)