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Third Semester B.E. Degree Examination, Dec.2019/Jan.2020 Elements of Mining Engineering

Time: 3 hrs.

Max. Marks: 100

Note: Answer FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What are the geo-technical investigations to be carried out during prospecting and exploration stage? (10 Marks)
- b. Explain the factors that govern the selection of mining methods. (10 Marks)

OR

- 2 a. List the classification of mining methods and their selection criteria. (10 Marks)
- b. Define the Mining Terminology. i) Vein ii) Vertical shaft iii) Decline iv) Run off mine v) Stripping ratio. (10 Marks)

Module-2

- 3 a. Explain the need for widening and deepening of shaft in an underground mine. (10 Marks)
- b. If there is a water logging strata in superjacent ground during sinking, which method of shaft sinking to be adopted. Explain the same with neat sketch. (10 Marks)

OR

- 4 a. Explain the unit operations during sinking a shaft. (10 Marks)
- b. If there is a loose sand in superjacent ground during sinking. Explain the method of sinking to be adopted with neat sketch. (10 Marks)

Module-3

- 5 a. Consider a drive of 3m high and 3m wide with a length of 100m. Assume the man power required for mechanized method of driving a drift and calculating the OMS for the same. (Specific gravity of rock is 3) (10 Marks)
- b. Explain the unit operation to be adopted in driving a drift by conventional method. (10 Marks)

OR

- 6 a. Consider a drive of 3m high and 3m wide with a length of 100m. Assume man power required for conventional method of driving a drift and calculating the OMS for the same (Specific gravity of rock is 2.5). (10 Marks)
- b. Explain and draw burn cut pattern of blasting with sequence of detonation. (10 Marks)

Module-4

- 7 a. List the salient features of systematic support rules. (10 Marks)
- b. Enumerate the differences of yield and rigid supports with neat sketch. (10 Marks)

OR

- 8 a. Explain prop and cog support use of in a drive. (10 Marks)
- b. Explain hydraulic and steel support used in mine. (10 Marks)

Module-5

- 9 a. What are the different types of drill patterns used in tunneling? Explain. (10 Marks)
- b. Explain the construction and working principle of earth pressure shield method. (10 Marks)

OR

- 10 Explain the excavation cycle in conventional method (Drill and Blast) of Tunneling. (20 Marks)