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**Fifth Semester B.E. Degree Examination, Jan./Feb. 2021**  
**Underground Coal Mining**

Time: 3 hrs.

Max. Marks: 100

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

**PART – A**

- 1 a. Write a short note on growth of coal mining industry in India. (10 Marks)  
b. Explain opening of coal seam incline and vertical shafts stating its favorable conditions, merits and demerits. (10 Marks)
- 2 a. What are the factors influencing choice of mining methods? Explain each in detail. (12 Marks)  
b. Differentiate between long wall mining and short wall mining. (08 Marks)
- 3 a. The 3 m thick coal seam dipping at a gradient of 1 in 7, occurring at a depth of 220 m is proposed to be developed by B and P pattern. The mine is expected to produce 370 tons per day per panel, with gallery width of 4.2 m. Draw a neat layout of panel and explain the face operations. Give the quantity of air to be supplied to each panel. Assume any other relevant conditions if any. Finally determine OMS per panel. (14 Marks)  
b. Draw neat sketches of pillars showing the different manner of extraction of pillars or stooks. (06 Marks)
- 4 Explain in detail the variants of Room and Pillar Mining Method with neat sketches. (20 Marks)

**PART – B**

- 5 A coal seam of 3.0 m thick, dipping at 1 in 8 is lying at a depth of 30m from surface. It is proposed to extract coal seam by fully mechanized long wall mining. Explain the method in detail, with a neat and suitable layout, giving following details:  
a) Necessary equipment required with specifications  
b) Manpower required and expected output and O.M.S. from L/W panel.  
Assume relevant data, wherever necessary. (20 Marks)
- 6 Explain with a suitable example, how to work in thin seams by long-wall method. Also mention the difficulties faced in thin seam mining. (20 Marks)
- 7 a. State the problems that could be faced in mining thick coal seams. (10 Marks)  
b. Briefly explain sub-level caving applicable for mining thick coal seam with neat sketch. (10 Marks)
- 8 Write short notes on the following :  
a. Hydraulic transport of coal in hydraulic mining (14 Marks)  
b. Applicability, advantages and disadvantages of blasting gallery method. (06 Marks)

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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.