



CBCS SCHEME

15MN54

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Underground Coal Mining

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. Explain the growth of Coal Mining Industry in India. (08 Marks)
b. Describe opening of coal seam by vertical shafts. (08 Marks)

OR

- 2 a. Discuss in detail Division of mine into blocks. (08 Marks)
b. List out the factors influencing the choice of underground coal mining methods. (08 Marks)

Module-2

- 3 a. Explain the basic classification of Bord and Pillar mining system. (08 Marks)
b. Describe in detail the different pillars extraction techniques used in underground coal mining. (08 Marks)

OR

- 4 a. With the Datas below, find out i) line strength of pillars and ii) factor of safety of pillars.
Depth of working = 200 m ; Width of galleries = 3m ; Height of galleries = 3m ;
Width of square pillars between centres of bords = 225m ; Density of coal = 2 tonnes/m³. (05 Marks)
b. Define i) Gallery ii) Goaf iii) Bord iv) rib v) hual. (05 Marks)
c. Explain any one room and pillar method suitable for 55° dipping coal seam. (06 Marks)

Module-3

- 5 a. Describe the basic classification of modern longwall faces. (04 Marks)
b. Explain different types of immediate roof with sketches.. (12 Marks)

OR

- 6 a. Explain with sketches, the extraction sequences of the seam by plough and powered supports in long wall. (10 Marks)
b. Determine OMS if, length of face is 150m, height of extraction 3m , wet width 0.9m , density 1.4 t/m³ and gives 2 full cut per shift no of people working in a shift is 20. (06 Marks)

Module-4

- 7 a. Draw a layout and explain longwall face retreating with blasting – off the solid. Assume your own conditions. (08 Marks)
b. Explain the problems of mining thick coal seams. (08 Marks)

OR

- 8 a. With a neat sketch explain sub – level caving. (08 Marks)
b. Explain inclined slicing method of mining thick seam. (08 Marks)

Module-5

- 9 a. With a neat sketch, explain Blasting Gallery method of mining. (08 Marks)
b. Discuss the different techniques used for Goaf control. (08 Marks)

OR

- 10 a. Explain Hydraulic mining and discuss its applicability. (08 Marks)
b. With a neat sketch, explain Horizon mining and list out its advantages and disadvantages. (08 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.