



# CBCS SCHEME

17MN35

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

Time: 3 hrs.

Max. Marks: 100

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

### Module-1

- 1 a. Define with neat sketch of following mining terminologies :  
(i) Raise (ii) Winze (iii) Adit (iv) Dip (10 Marks)  
b. Explain the significance of Indian Mining industry on national economy. (10 Marks)

OR

- 2 a. Explain various stages of mine life. (10 Marks)  
b. Define with neat sketch of following mining terminologies :  
(i) Hanging wall (ii) Foot wall (iii) Shaft (iv) Cross cut (10 Marks)

### Module-2

- 3 a. What are general arrangements or equipment required for shaft sinking operation? Explain with well labeled neat sketch. (10 Marks)  
b. Explain temporary lining and permanent lining with well labeled neat sketch. (10 Marks)

OR

- 4 a. Explain piling method of shaft sinking operation with well labeled neat sketch. (10 Marks)  
b. Explain Walling Scaffold and Rider with neat sketch. (10 Marks)

### Module-3

- 5 a. List various methods of raise drivages and explain Alimak raise climber method with neat sketch. (10 Marks)  
b. The drive size is 4.3 mts × 3.75 mts drilled with jack hammer and density deployed for face is 12/day. Then calculate volume, Tonnage and OMS of the face. (10 Marks)

OR

- 6 a. Explain various drilling patterns for underground development faces with neat sketch. (10 Marks)  
b. Poll of the development drive is 1.2 mts and size of the face is 3.5 mts × 3.5 mts. Density of the zinc ore is 2.8. Manpower deployed for drive is 15 persons/day (3 shifts/day). Then calculate (i) Volume of the face (ii) Tonnage of the face (iii) OMS (10 Marks)

### Module-4

- 7 a. What are the materials required for mine support? (06 Marks)  
b. Explain prop (wood) support with neat sketch. (07 Marks)  
c. Explain chockmate support with well labeled neat sketch. (07 Marks)

OR

- 8 a. Explain steel arches support with neat sketch. (06 Marks)  
b. Explain Rock bolt/roof bolt support with neat sketch. (07 Marks)  
c. What are the contrast and similarity of hydraulic and friction props. (07 Marks)

Module-5

- 9 a. Explain cycle operation for opening a tunnel by conventional method. (10 Marks)  
b. Explain tunnel boring machine with well labeled neat sketch. (10 Marks)

OR

- 10 a. Explain Burn cut drilling pattern in tunneling method. (08 Marks)  
b. Explain shield tunneling method with their applicability, advantages, disadvantages and well labeled neat sketch. (12 Marks)

\*\*\*\*\*