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S.E.(Mining) Semester- IV (Revised Course 2007-08)
EXAMINATION Nov/Dec 2019
Mine Development

[Duration : Three Hours]

[Total Marks : 100]

Instructions:-

- 1) Answer **any five** questions selecting at least **one** question from **each** Module.
- 2) Make suitable assumptions **whenever** required.
- 3) Supplement your answer with neat sketches **wherever** required.

Module-I

1. A. Write a note on reserve estimation. Briefly explain the methods of reserve estimation and calculate average grade of Zn with 2.0% cut off grade and minimum stopping width of 140 cm for samples of length 30, 10, 80, 20 cm with grade 4.0%, 0.2%, 2.8%, 3.0% Zn respectively. **12**
- B. Explain in details about UNFC and state its advantages. **8**
2. A. Briefly explain the stage of mineral exploration. Write a note on Surface and Underground methods of exploration. **10**
- B. Define sampling and its role on mining. Explain different technique for Sample preparation for analysis. **10**

Module-II

3. A. What is box cut? What are the factors for selecting location and orientation of box cut, explain in details? **10**
- B. Discuss the four alternatives for opening up a moderately dipping coal seam with shafts also state their advantages and dis-advantages. **10**
4. A. Write short notes on:- **5x4**
 - i. Driving of trenches
 - ii. haul road design parameters
 - iii. haul road equipment
 - iv. mine regulations on steep workings

Module-III

5. A. Write a note on drilling and blasting in shaft sinking. Show design of a sinking bucket used in shaft sinking. 10
- B. Explain **any two**:- 5+5
- i. Shaft widening
 - ii. Shaft deepening
 - iii. Mine regulation on shaft
6. A. Write a note on sinking drum and forced drop caisson method of shaft sinking. 10
- B. Explain the different types of linings used for shaft sinking. 10

Module-IV

7. A. Explain briefly Selection of size and shape of drift, level and crosscut of tunneling. 7
- B. With neat sketches explain driving of raise with JORA lift. 6
- C. Explain two compartment and long hole method of raising. 7
8. A. Give a Comparison of drilling, charging and blasting operations between raises and winzes 10
- B. Explain following:- 5+5
- a) Temporary and permanent supports system in tunneling
 - b) Safety regulations on inclined road ways.