

**Sixth Semester Examination 2013**  
**Underground Metal Mining (MN604)**  
**Mining Engineering**

Full marks 70

Time : 3 hours

Question number 1 is compulsory  
Answer any five from the rest of the questions

1. a. Give two differences between horizontal cut and fill and post and pillar method of stoping.
- b. what are the parameters considered for selecting a stoping method
- c. Give two differences between solution mining and leaching
- d. Give three differences between sublevel stoping and VCR method of stoping.
- e. Write short note on Kimberley chute
- f. Give three differences between the principle of underhand and overhand method.
- g. Describe square set support.

(2+4+2+3+3+3+3)

2. A haulage drive of 3.2 X 3mts and of 100mts in length has to be driven in hard rock conditions. The work has to be completed in 60 days. Describe the cycle of operation, manpower and time cycle for completing the drive.

(10)

3. A raise of 90 mts. has to be driven through hard rock conditions by conventional raising method. The work has to be completed within 60 days. Describe the cycle of operations, manpower required and time cycle. Enumerate your answer with figures

(10)

4. a. Describe ore pass system used in metal mines.
- b. An orebody of 32mts in thickness dipping at 25°-30° has to be worked by breast stoping. Describe the method of working.

(4+6)

5. An orebody of 32-36mts. in thickness, dipping at  $62^{\circ}$ - $68^{\circ}$  and having strong hangwall and footwall has to be worked by Sublevel method of stoping. Describe the method.

(10)

6. An orebody of 33-38mts. in thickness, dipping at  $52^{\circ}$  -  $58^{\circ}$  degrees and having weak hangwall and footwall is to be worked by horizontal cut and fill method of stoping. Describe the method.

(10)

7. Classify Aqueous Mining? Describe hydrauliclicking, highlighting its conditions of applicability, sequence of development and extraction (with neat sketches), advantages and disadvantages.

(2+8)

8. Write short notes on:

a. Stope and pillar stoping

b. Mechanical filling method used in cut and fill stoping

(5+5)