

**B. E. (7<sup>th</sup> Semester, Mining) Semester Examination, 2011**  
**Special Underground Methods (MN-~~705~~)<sup>705</sup>**

**Full Marks:70**

**Time: 3hours**

**Answer six questions taking three from each half.**

**Question No.1 and 6 are compulsory**

**Figures on the right-hand side margin indicate full marks**

**1<sup>st</sup> Half**

1. a. Describe the draw control mechanism in caving method of stoping.  
b. Describe with neat sketch the method of preparation of vertical free face using slot raise in sublevel caving method.  
c. What are the parameters necessary for selection of a stoping method?  
d. Describe the different types of schedules.  

(4+4+4+3)
2. An orebody of 35 to 38mts in thickness having weak hangwall and footwall has to be worked by sublevel caving method of stoping. With neat sketches describe the method in detail.  

10  
(11)
3. a. With a neat sketch describe the development operations in block caving method of stoping, stating the purpose for which they are done and the location.  
b. Give two differences between block, panel and mass caving.  

7  
(8+3)
4. A lead zinc deposit has been proved by boring. Describe the various steps to be undertaken to complete the planning of the deposit.  

10  
(11)
5. a. Describe the relationship between the different types of schedule.  
b. A decline 4m X 3.8m having a length of 5000mts has to be driven, and the work has to be completed in 5 years. Detail the planning activities of the work with various types of schedule.  

(3+7)

## SECOND HALF

6. a) Suggest a appropriate method to extract a coal seam through single slice with the following information:-
- Thickness: ranging 6m to 15m
  - Gas: free
  - Gradient: almost flat
  - Immediate roof: carbonaceous shale and soft Sandstone.
- b) What is Hydraulic Mining?
- (9+4)
7. Describe a proper method for extraction of a thick coal seam. The seam characteristics are stated below:-
- Depth of seam: 200-300m from surface
  - Thickness of the seam: 21.7m
  - Gradient of the seam:  $26^{\circ}$  to  $34^{\circ}$
  - Degree of gassiness: Degree-III
  - Nature of immediate roof: 6.5m sandy shale, inter-bedded with sandstone and with massive sandstone above.
  - Nature of floor: 1.6m of burnt coal (Jhama) with sandy shale inter-bedded with sandstone below.
- (11)
8. a) How supporting is done at face operating by Jankowice system?
- b) Describe Tipong method of extraction with necessary diagram.
- (5+6)
9. a) Describe the working procedure of Simultaneous Extraction in Descending Order with Caving.
- b) Describe the process of development in Bhaska Method of Mining.
- (6+5)
10. a) Compare between integral caving systems with sub-level caving system of extraction.
- b) Explain with illustration the induced blasting practice in Blasting Gallery technique
- (5+6)