

II B.Tech II Semester Supplementary Examinations, April/May 2006
MINERAL DRESSING
(Metallurgy & Material Technology)

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss qualitative make up of locked particles with suitable examples. [5]
(b) Explain quantitative make up of locked particles. [5]
(c) Compare the Blake type and Dodge type of jaw crushers with line diagrams. [6]
2. (a) What are the industrial methods of sizing? What is the mineral dressing rule for sizing? [2]
(b) Explain the various industrial screening surfaces. [3]
(c) Explain the various industrial screens mentioning their capacities. [3]
(d) What is screening efficiency? Give an expression for it. [2]
(e) What is effectiveness of a screen and derive an expression for it in terms of mass fractions. [6]
3. (a) Derive expressions for time and velocity both under Stokes and Newton conditions from first principles. [8]
(b) Explain their importance in mineral processing. [2]
(c) What is half time? [2]
(d) Discuss the effect of movement of many particles on velocity and give expression for correcting it. [4]
4. (a) What is assay/Tenor value of an ore? How is it expressed. [3]
(b) What is selectivity Index? Derive an expression for it in terms of assay values in a binary ore containing one valuable and other undesirable mineral. [6]
(c) What is the range of its value? [2]
(d) What are the limitations of selectivity Index. [2]
(e) Define and explain economic recovery. [3]
5. (a) What is heavy media separation? [2]
(b) What is the effect of size on the efficiency of HMS? [2]
(c) Explain with examples, the various industrial heavy media used. [6]
(d) Describe the basis for electro-static separation. [6]
6. (a) Explain the mechanism of action of the following:
i. Collectors

- ii. Frothers. [4+4=8]
- (b) Write exhaustively the commercial collectors used in flotation. [8]
7. (a) Explain how washability curves are drawn. [6]
- (b) Describe Wilfley table with respect to its principle of working, construction and operating conditions. [10]
8. Write short notes on any FOUR of the following:
- (a) Technical and economic objectives of ore dressing
- (b) Trommels
- (c) Sizing and sorting classifiers
- (d) Concentration of Pb-Zn ores
- (e) Ore dressing practices of Iron ores. [4x4=16]
