

**II B.Tech II Semester Supplementary Examinations,  
November/December 2005  
MINERAL DRESSING  
(Metallurgy & Material Technology)**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

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1. (a) What is sampling ? What are its advantages? [4]  
(b) Distinguish between hand sampling and mechanical sampling methods ? [6]  
(c) Explain the principle of operation of a synder sampler with the help of a neat sketch? [6]
2. (a) With a neat sketch explain the working of a Rod mill? [8]  
(b) Compare Ball mill and Rod mill? [8]
3. (a) Discuss the principle of Sedimentation? [8]  
(b) Discuss the principle of Elutriation? [8]
4. (a) Discuss about the importance of Reynolds number? [6]  
(b) What are equal settling particles & Explain. [5]  
(c) Distinguish between free settling and hindered settling and their importance? [5]
5. (a) What is the purpose of Quantifying concentration operations ? [5]  
(b) With a suitable examples explain 'Direct statement method'. [6]  
(c) Discuss about economic recovery? [5]
6. (a) Explain the principle of Jigging? [4]  
(b) Classify the various Jigging machines? [5]  
(c) Describe the process-taking place in a Harz Jig machine. [7]
7. (a) What is the principle of floatation? [4]  
(b) What are Collectors? Classify them. Explain the mechanism of collection. [12]
8. (a) What are the different Magnetic substances? Describe them? [6]  
(b) What is the principle of Magnetic separation? [5]  
(c) Describe any one magnetic separation process? [5]

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1. (a) What is crushing? What are the size ranges in a crushing operation? [6]  
(b) Classify the various crushers. Compare Blake jaw crusher and Dodge jaw crusher [5]  
(c) What do you mean by the capacity of a crusher? Explain [5]
2. (a) With a neat sketch explain the working of a Rod mill? [8]  
(b) Compare Ball mill and Rod mill? [8]
3. (a) What is the purpose of sizing? [4]  
(b) What are the sizing techniques used in laboratory and in industry? [6]  
(c) Describe sizing by screening process? [6]
4. (a) Discuss about the importance of Reynolds number? [6]  
(b) What are equal settling particles & Explain. [5]  
(c) Distinguish between free settling and hindered settling and their importance? [5]
5. (a) What are the desirable conditions in a classifier ? [7]  
(b) With the help of neat sketch explain the working of an Allen cone? [9]
6. (a) Describe on screen and through Jigging? [8]  
(b) Describe a method to beneficiate coal using jigging? [8]
7. (a) What are the reagents required for floatation? Give examples. [5]  
(b) What are froathers?. Explain their action. [6]  
(c) What is the effect of particle size on floatation? [5]
8. (a) What are the different Magnetic substances? Describe them? [6]  
(b) What is the principle of Magnetic separation? [5]  
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1. (a) Discuss the various methods of sampling? [9]  
(b) Mention and explain the various errors in sampling process? [7]
2. (a) With a neat sketch explain the working of a Rod mill? [8]  
(b) Compare Ball mill and Rod mill? [8]
3. (a) What is the purpose of sizing? [4]  
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5. (a) What is the purpose of Quantifying concentration operations ? [5]  
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2. (a) With a neat sketch explain the working of a Rod mill? [8]  
(b) Compare Ball mill and Rod mill? [8]
3. (a) Discuss about the mechanism of passing through a screening surfaces. [5]  
(b) What factors affect capacity of a screen? Explain. [5]  
(c) Discuss about effectiveness of a screen? [6]
4. (a) Discuss the factors affecting settling of solids in a fluid? [6]  
(b) Derive stokes equation for terminal velocity? What are its assumptions and limitations? [10]
5. Derive expressions for: [8+8]  
(a) Ratio of concentration  
(b) Recovery
6. (a) Explain the principle of Jigging? [4]  
(b) Classify the various Jigging machines? [5]  
(c) Describe the process-taking place in a Harz Jig machine. [7]
7. (a) What is the principle of floatation? [4]  
(b) What are Collectors? Classify them. Explain the mechanism of collection. [12]
8. (a) What are the design considerations in designing magnetic separator? [6]  
(b) What are the applications in magnetic separation? [5]  
(c) What factors affect the efficiency of magnetic separation? [5]

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