Code No: RR221804 **Set No.1**

II B.Tech. II Semester Regular Examinations, April/May -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 crushing? What are the size ranges in a crushing operation?
   (b) Classify the various crushers. Compare Blake jaw crusher and Dodge jaw crusher
   (c) What do you mean by the capacity of a crusher? Explain
2. (a) Distinguish between crushing and grinding?
   (b) Classify the various grinding mills.
   (c) Explain the working of a Hardinge Ball mill?
3. (a) What is the purpose of sizing?
   (b) What are the sizing techniques used in laboratory and in industry?
   (c) Describe sizing by screening process?
4. (a) Discuss the factors affecting settling of solids in a fluid?
   (b) Derive stokes equation for terminal velocity? What are its assumptions and limitations?
5. Derive expressions for:
   (a) Ratio of concentration
   (b) Recovery
6. (a) Describe on screen and through Jigging?
   (b) Describe a method to beneficiate coal using jigging?
7. (a) What is the principle of floatation?
   (b) What are Collectors? Classify them. Explain the mechanism of collection.
8. (a) What is the principle of Electro static separation?
   (b) What are the different Electrostatic separators. Describe any one in detail?
   (c) What factors effect the efficiency of ESP. What are their applications?

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Code No: RR221804 **Set No.2**

II B.Tech. II Semester Regular Examinations, April/May -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 ore sampling? Explain the various methods of hand sampling.
   (b) What is ore dressing. Explain the scope and objectives of ore dressing?
   (c) What are the advantages of ore dressing?
2. (a) With a neat sketch explain the working of a Rod mill?
   (b) Compare Ball mill and Rod mill?
3. (a) What is the purpose of sizing?
   (b) What are the sizing techniques used in laboratory and in industry?
   (c) Describe sizing by screening process?
4. (a) Discuss the factors affecting settling of solids in a fluid?
   (b) Derive stokes equation for terminal velocity? What are its assumptions and limitations?
5. (a) What is Heavy media separation and what is its principle?
   (b) Discuss about the different media What are their advantages and disadvantages?
   (c) Give a flow chart or steps in Heavy media separation?
6. (a) Describe on screen and through Jigging?
   (b) Describe a method to beneficiate coal using jigging?
7. (a) What is the importance of surface tension in floatation?
   (b) Explain natural and acquired floatability.
   (c) Differentiate between collectors and froathers.
   (d) Write a short note on adsorption.
8. (a) What is the principle of Electro static separation?
   (b) What are the different Electrostatic separators. Describe any one in detail?
   (c) What factors effect the efficiency of ESP. What are their applications?

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Code No: RR221804 **Set No.3**

II B.Tech. II Semester Regular Examinations, April/May -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) Derive angle of nip for a roll crusher.
   (b) What factors effect angle of nip?
   (c) What is the capacity of a roll crusher?
2. Draw a neat sketch of a Ball mill and explain the theory involved in its operation.
3. (a) What is the purpose of sizing?
   (b) What are the sizing techniques used in laboratory and in industry?
   (c) Describe sizing by screening process?
4. (a) Discuss about the importance of Reynolds number?
   (b) What are equal settling particles?
   (c) Distinguish between free settling and hindered settling and their importance?
5. (a) What are the desirable conditions in a classifier ?
   (b) With the help of neat sketch explain the working of an Allen cone?
6. (a) Explain the principle of Jigging?
   (b) Classify the various Jigging machines?
   (c) Describe the process-taking place in a Harz Jig machine.
7. (a) What are the reagents required for floatation? Give examples.
   (b) What are froathers?. Explain their action.
   (c) What is the effect of particle size on floatation?
8. (a) What are the different Magnetic substances? Describe them?
   (b) What is the principle of Magnetic separation?
   (c) Describe any one magnetic separation process?

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Code No: RR221804 **Set No.4**

II B.Tech. II Semester Regular Examinations, April/May -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) State and explain the laws of communition?
   (b) What are their assumptions, limitations and advantages of communition?
2. (a) With a neat sketch explain the working of a Rod mill?
   (b) Compare Ball mill and Rod mill?
3. (a) What is the purpose of sizing?
   (b) What are the sizing techniques used in laboratory and in industry?
   (c) Describe sizing by screening process?
4. (a) Discuss about the importance of Reynolds number?
   (b) What are equal settling particles?
   (c) Distinguish between free settling and hindered settling and their importance?
5. Discuss briefly about industrial processes using heavy liquids in Heavy media separation.
6. (a) Describe on screen and through Jigging?
   (b) Describe a method to beneficiate coal using jigging?
7. (a) What is the importance of surface tension in floatation?
   (b) Explain natural and acquired floatability.
   (c) Differentiate between collectors and froathers.
   (d) Write a short note on adsorption.
8. (a) What are the design considerations in designing magnetic separator?
   (b) What are the applications in magnetic separation?
   (c) What factors affect the efficiency of magnetic separation?

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