

Dr Vineel Karmar

5/5/2023
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Roll No.:

Department of Material Science and Engineering
National Institute of Technology, Hamirpur

Non- Ferrous Extractive Metallurgy (MS-323)

End Term Examination (2022-23)

B. Tech. (MSE) VIth Semester

Duration: 3 hrs 00 Minute

Max Marks: 50

Note:

- Attempt all questions.
- Draw a well labeled diagram wherever necessary.

Question 1: Explain the following:

(2×7=14)

- Pressure Leaching and bacterial leaching
- Smelting and reduction
- The Becher process and Kroll process
- Metallothermic and Carbothermic processes
- Magnetic separation method and Froth floatation method
- Mond process and Van Arkel Method
- Ionic motilities and transport number

Question 2: What are the factors affecting the efficiency of hydrometallurgical processes? (5)

Question 3: Explain the solution purification method used in Hydrometallurgy. (5)

Question 4: Explain the Hall-Heroult process in details. (6)

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Question 5: How is electrorefining different from electrowinning, and what are its advantages and disadvantages? (5)

Question 6: What does mean by Mineral beneficiation? Mention the recent trends of mineral production and consumption in India. (5)

Question 7: Explain the Cyanidation process of Gold extraction. (4)

Question 8: Write the various steps and reaction involved in extraction of copper from its ore in pyrometallurgical route. Draw a well-labelled diagram for electrolytic refining of copper. (6)

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