



21MNP3E1AL

M.Tech. III Semester Degree Examination, April/May - 2023

MINERAL PROCESSING

Non-Ferrous Extractive Metallurgy

Time : 3 Hours

Maximum Marks : 70

Note : Answer **all** the questions **Q.1** is **compulsory**.

Answer **any five** of the following.

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| 1. | (a) | What is smelting ? Explain reduction smelting. | 8 |
| | (b) | Explain in brief different types of roasting. | 6 |
| 2. | (a) | Describe pyro-metallurgical extraction of copper. | 8 |
| | (b) | Distinguish between matte smelting and reduction smelting. | 6 |
| 3. | (a) | Explain hydrometallurgical route of extraction of Gold and add a note on electro refining of Gold. | 8 |
| | (b) | Explain acid leaching and alkali leaching with example. | 6 |
| 4. | (a) | Describe iodide process for purification of metals. | 6 |
| | (b) | Illustrate with an example refining of a metal by liquidation technique. | 8 |
| 5. | (a) | Mention the properties required of an electrolyte. | 6 |
| | (b) | What is the difference between electro winning and electro refining. | 8 |
| 6. | (a) | Illustrate the flow sheet for extraction of zinc from its ore. | 8 |
| | (b) | What are the main sources of Copper lead and zinc ? | 6 |
| 7. | (a) | What is Leaching ? Give a brief note on different types of leaching operations. | 8 |
| | (b) | Discuss the process of electrolytic refining of copper. | 6 |
| 8. | (a) | Discuss the cyanadation process for the extraction of silver. | 8 |
| | (b) | What are the advantages and disadvantages of Hydrometallurgy ? | 6 |

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