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Total number of printed pages – 2

B. Tech
PEMT 5401

Seventh Semester Back Examination – 2014
NON FERROUS EXTRACTIVE METALLURGY
BRANCH : MME

QUESTION CODE : L 167

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory and any **five** from the rest.
The figures in the right-hand margin indicate marks.*



1. Answer the following questions (any **ten**) : 2×10
- (i) Name four important non-ferrous alloys.
 - (ii) What is fire refining ?
 - (iii) What is metal cloud ?
 - (iv) Name three copper ores, one each from Oxide, Carbonate and Sulphide.
 - (v) Where does aluminium ores occur in India ?
 - (vi) What are the main uses of Zinc metal ?
 - (vii) What is Spelter ?
 - (viii) What is blister copper ?
 - (ix) What is bacteria leaching ?
 - (x) What is cementation ?
 - (xi) What is Filament process ?
 - (xii) Name the pyrometallurgical process by which Mg is extracted.
 - (xiii) What is anodizing ?
 - (xiv) What is Gun metal ?
2. Write short notes on any **two** of the following : 5×2
- (a) Flash smelting technique in copper extraction
 - (b) Anode effect
 - (c) Self baking Sodberg electrode
 - (d) Hoopé's process of aluminium refining
 - (e) Mond process

P.T.O.

3. Name different sources of Magnesium. With a flow sheet diagram explain magnesium production. Why ferrosilicon is used in Magnesium extraction not carbon ? 10

Or

Discuss Bayer process employed at HINDALCO for the production of alumina with the help of flow sheet. Explain ALCOA process for the production of aluminium.

4. (a) Name different ores of Zinc. Discuss different reactions that take place in the blast furnace during zinc extraction. 6
(b) Discuss Environmental pollution due to Copper and Zinc industries. 4
5. (a) Discuss KROLL'S process for the production of Titanium sponge. 5
(b) Explain Nickel extraction from sulphide ores. 5
6. (a) Explain thermodynamic principle of metal refining. 4
(b) What is leaching ? Discuss the effect of different operating variables on leaching process. 6
7. (a) What are the important ores of copper ? Mention places where copper ore deposits occur in India. List out the main applications of copper. 5
(b) What are the important steps in the production of copper from its sulphide ores by Pyrometallurgical process ? Explain them. 5
8. (a) What are the important ores of lead ? Mention places where lead ore deposits occur in India. List out the main applications of lead. 5
(b) What are the important steps in the production of lead from its sulphide ores by pyrometallurgical process ? Explain them. 5

