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Total number of printed pages – 2

B. Tech
PEMT 5401

Seventh Semester (Special) Examination – 2013

NON-FERROUS EXTRACTIVE METALLURGY

BRANCH : MME

QUESTION CODE : D 422

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 : 2×10
- (a) What on lead bullion ?
 - (b) What is raffinate ?
 - (c) What is fire refining ?
 - (d) What is filament process ?
 - (e) What do you mean by grade matte ?
 - (f) What is anode mud ?
 - (g) What is matte smelting ?
 - (h) What is metal cloud ? How it is formed ?
 - (i) What do you mean by shock cooling ?
 - (j) What do you mean by cementation ?
2. (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

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3. (a) Draw the flow sheet for blast furnace smelting of lead ore. 5
 (b) Explain the terms dressing and dezincking. 5
4. (a) Explain the role of cryolite in the electrolysis of alumina. 5
 (b) List out the important minerals and applications of aluminium. 5
5. (a) What are the chief sources of Nickel ? Explain the extraction of Nickel from sulphide ores. 5
 (b) Explain about extraction of Nickel from oxide ores. 5
6. (a) Discuss the thermodynamic principle of metal refining. Explain the electro-chemical reaction taking place at nickel anode. 5
 (b) With a flow sheet explain Titanium sponge production by KROLL'S process. 5
7. (a) Mention different sources of magnesium. Discuss Magnesium extraction by DOW process. 5
 (b) Explain the role of vacuum and calcium oxide in Pidgeon process. What is advantage of using ferrosilicon over carbon in the Magnesium extraction ? 5
8. Write short note on any **two** of the following : 5×2
 (a) Purification by distillation
 (b) Dressing
 (c) Volatilization process of zinc refining
 (d) Gold bullion

