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Total number of printed pages – 2

B. Tech
PEMT 5401

Seventh Semester Examination – 2013
NON-FERROUS EXTRACTIVE METALLURGY

BRANCH : MME, MM

QUESTION CODE : C-238

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) Why is KROLLI process is not used in Thorium extraction ?
 - (b) What is bacteria Leaching ?
 - (c) What do you mean by Dressing ?
 - (d) What is volatilization roasting ?
 - (e) What is metallic cloud ? How is it formed ?
 - (f) What is Filament process ?
 - (g) What do you mean by shock cooling ?
 - (h) What is fire refining ?
 - (i) What is concentration potential ?
 - (j) What are the pollutants generated from iron and aluminium industries ?
2. (a) Discuss the finding of important mineral of Tin. Explain rotary furnace smelting of tin concentrate. 2+3
(b) Explain with a neat flow sheet diagram for fire refining of Tin. 5
3. Write short notes on any **two** of the following : 5×2
 - (a) Nickel refining
 - (b) Purification of Zinc
 - (c) Bioleaching
 - (d) Metallothermic reduction.



P.T.O.

4. (a) Discuss name and occurrence of important lead minerals and their deposit in India. Discuss the treatment of lead ore with reference to concentration and roasting. 5
- (b) Discuss with the help of a neat flow sheet diagram the lead smelting in a blast furnace. Explain the importance of scrap iron in the charge for the production of lead. 5
5. (a) Draw a neat sketch of Imperial smelting blast furnace for zinc extraction. 5
- (b) Explain the various smelting reactions take place in the zinc recovery system in a blast furnace. 5
6. (a) What are the different sources of Magnesium ? With a flow sheet diagram discuss the different steps involves DOW process for Magnesium production. 5
- (b) Discuss the role of calcium oxide and application of vacuum in Pidgeon process. What is the advantage of using ferrosilicon over carbon for Magnesium extraction ? 5
7. (a) How the Titanium be produced from Ilmenite and Rutile ores. 5
- (b) What are the alternative methods for Titanium extraction from its ores ? Explain them. 5
8. (a) Explain the chief sources of Nickel. Explain the extraction of Nickel from sulphide ores. 5
- (b) Explain about the extraction of Nickel from its oxide ores. 5

