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Total number of printed pages – 2

B. Tech
PECE 5403

Seventh Semester Back Examination – 2014

MINERAL PROCESS ENGINEERING

BRANCH : CHEM

QUESTION CODE : L 155

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) Name some of the thermal methods for processing of ores.
 - (b) Highlight some of the physical and physiochemical properties of minerals.
 - (c) All ores are minerals. Justify the statement.
 - (d) What is sintering ? Write the equipments used for sintering.
 - (e) Explain chelate extraction.
 - (f) What is anodic slime ?
 - (g) What do you mean by run-of-mine ?
 - (h) Define the cementation process for the recovery of Gold from the cyanide solution.
 - (i) Write some of the ore beneficiation operations.
 - (j) Discuss about roasting and dead roasting.
2. What is roasting ? What are the main purposes of roasting ? Describe the different types of roasting and industrial roaster in detail. 10
3. (a) Discuss in detail about microbial leaching for sulphide ores mentioning about its all possible advantages. 6
(b) Discuss the various factors which affect the bacterial growth. 4
4. What is ion-exchange ? Discuss with a neat flow sheet about the operation of solid ion-exchange process. 10

P.T.O.

5. (a) What are electro-winning, electro-refining, and electro-plating ? 5
(b) By mentioning the Nernst equation discuss about electro-plating. 5
6. What are the essential features of a successful hydrometallurgical process ?
Under what condition would it be preferred to a pyrometallurgical process ? 10
7. What is the scope, objectives, and advantages of mineral processing ? Discuss
the different ore beneficiation operations. 10
8. Write short notes on any **two** : 5×2
- (a) Gold cyanidation
 - (b) Calcinations
 - (c) Amalgamation inhibitors
 - (d) Fluidized bed roasting.

