

GUJARAT TECHNOLOGICAL UNIVERSITY
B. E. - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 132103**Date: 03-01-2013****Subject Name: Mineral Processing****Time: 10.30 am – 01.00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Define the term classifier. Explain the working process of mechanical classifier with the help of a schematic diagram. **07**
(b) Define mineral processing. Justify its need in extractive metallurgy. **07**
- Q.2** (a) What is Crushing? Draw Jaw Crusher and Explain its working. **07**
(b) Explain following with proper examples: **07**
1. Ore 2. Mineral 3. Flux
OR
(b) Discuss the principle of Electro static separation and explain the process description. **07**
- Q.3** (a) Discuss the Physical and chemical characteristics of Galena and chalcopyrite ores. **07**
(b) List different laboratory sizing techniques and describe in brief about them. **07**
OR
- Q.3** (a) Discuss the Physical and chemical characteristics of Haematite and Bauxite ores. **07**
(b) Explain the theory of ball mill operation along with its different zones. Draw required figure. Mention process affecting factors. **07**
- Q.4** (a) Describe the working principle of wilfly table and draw suitable figure. **07**
(b) Explain principle of froth flotation technique. Discuss different process variables. **07**
OR
- Q.4** (a) Write a note on heavy media separation **07**
(b) Explain actions of reagents, collectors and frothers in froth flotation operation. **07**
- Q.5** (a) Explain the terms: Free settling and Hindered Settling. Where are these terms used in mineral separation process? Explain with Example. **07**
(b) Define Angle of nip and derive the theory of angle of nip in roll crushing along with choke feeding system. **07**
OR
- Q.5** (a) Explain the principle of magnetic separation and mention the process description. **07**
(b) What is Jigging? Explain its principles & applications. **07**
