

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 2132103****Date: 23-12-2014****Subject Name: Mineral Processing****Time: 02.30 pm - 05.00 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)** List out ores/minerals of metals like Fe, Cu, Al, Pb, Zn, Ag, Ti with their chemical composition. **07**
- (b)** What are the advantages of mineral processing. Draw a simplified flow sheet for the various stages involved in ore processing? **07**
- Q.2 (a)** List different types of crushers. Draw a simplified diagram of Blake Jaw Crusher showing different parts. Also mention factors affect its operation. **07**
- (b)** Give physical and chemical characteristics and sources of following minerals: 1) Iron 2) Copper 3) Aluminum 4) Zinc **07**
- OR**
- (b)** Describe the working principle of Wilfley table with suitable diagram. **07**
- Q.3 (a)** What is screening? Classify different types of industrial screening. Explain sieve analyzer. **07**
- (b)** Explain Jigging Operation? Draw a diagram of Jig showing different parts and explain its operation. **07**
- OR**
- Q.3 (a)** Define terminology in Mineral processing like 1) tenor of ore, 2) Locking and unlocking of ore, 3) concentrate, 4) middling and 5) tailing, 6) Comminution. **07**
- (b)** Define crushing and grinding. Explain Ball mill operation along with its different zones. **07**
- Q.4 (a)** Short note on Heavy media Separation. **07**
- (b)** Differentiate between Magnetic and Electrostatic separation. **07**
- OR**
- Q.4 (a)** Draw a figure of roll crusher and derive a relation between friction coefficient and angle of nip. **07**
- (b)** What is classification? Give different types of classifier and explain air classifier. **07**
- Q.5 (a)** Write short note on Sedimentation and Thickening. **07**
- (b)** Draw Simplified beneficiation Flow Sheets of sulphide ore of copper. **07**
- OR**
- Q.5 (a)** Draw Simplified beneficiation Flow Sheets of Bituminous coal. **07**
- (b)** Define Flotation process? List different types of flotation processes. How do different flotation reagents like collector Frother, Activator and Depressant affect flotation process? **07**
