

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– III (NEW) EXAMINATION – SUMMER 2015

Subject Code:2132103**Date:02/06/2015****Subject Name:Mineral processing****Time:02.30pm-05.00pm****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)	What is mineral processing? Describe the benefits of it before extractive metallurgy also describes the difference between ore and minerals.	07
	(b)	Describe the following terms A. Ratio of concentration B. enrichment ratio C. Recovery D, Reduction ratio E. open circuit system F. close circuit system G concentrate	07
Q.2	(a)	The angle of nip of roll crusher is dependent on co efficient of friction. justify the statement	07
	(b)	Describe in detail about jaw crusher with consideration of operation, chara. efficiency and application	07
		OR	
	(b)	Write short note on crusher in which size reduction is take place by impact and attrition	07
Q.3	(a)	Describe the factors affecting grinding operation	07
	(b)	What is screening? Explain in brief the factors affecting screen efficiency	07
		OR	
Q.3	(a)	Derive the relationship between the critical speed of ball mill and its diameter	07
	(b)	What is flowing film concentration? describe the wilfley table operation	07
Q.4	(a)	What is classification? list the different types of classifier and explain the air classifier in detail.	07
	(b)	Describe the free settling and hindered settling concept	07
		OR	
Q.4	(a)	Write the difference between magnetic separator and electrostatic separator	07
	(b)	Write short note on froth flotation	07
Q.5	(a)	Write short note on jigging	07
	(b)	Multiple choice question	07
	1	In roll crusher , the specific power consumption and the production rate is effected by A. reduction rate B. Differential roll speed C. Bothe A & B D. Neither A nor B	
	2	Which of the following is a rotating screen? A Grizzly B. trammel C shaking screen D none of these	

	3	For efficient grinding , ball mills must be operated A. At a speed less than critical speed B. At a speed more than critical speed C. At a speed equal to critical speed D. With minimum possible small balls	
	4	For beneficiation of iron ore , the most commonly used method is A Flocculation B froth flotation C Jigging and tabling D none of these	
	5	In froth flotation , chemical agent added to cause air adherence is called A Collector B frother C modifier D none of these	
	6	Separation of particles of various sizes ,shapes and densities by allowing them to settle in a fluid is called A. Classification B. Froth flotation C. Thickening D. None of these	
	7	Xanthates are used in froth flotation process as a/an A. Conditioner B. frother C. collector D. activator	
		OR	
Q.5	(a)	Derive the terminal velocity equation for setting of fine and coarse sphere	07
	(b)	What is importance of sieve analysis for the mineral processing? What is size distribution?	07
