Seat No.: _____ Enrolment No._____

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. justfy 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 selling 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**

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