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

Subject Code: 2143608 Date:30/05/2015 **Subject Name: Mechanical Operation In Chemical Process Industries** Time: 10:30am-1.00pm **Total Marks: 70**

Instructions:

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

Industry. (b) Explain the construction and working of the jaw crusher. 07 Q.2 (a) Write statement and equation of Rittinger's law. A set of crushing rolls of 1400 mm diameter by 400 mm width of face. Minimum spacing between two rolls is 10 mm and the angle of nip is 30°. What is the maximum permissible size of feed? 07 (b) Calculate the power required for crushing 150 ton/hr of limestone if 80% of the feed passes through 2 inch screen and 80% of the product passes through 1/8 inch screen. Work index of limestone = 12.74 OR 07 (b) Discuss different types of conveyers and their application. 07 Q.3 (a) Write all assumptions and derive equation for screen efficiency. 07 (b) Calculate the spherecity of a cylinder of 1cm diameter and 1cm height. 04 (ii) Differentiate between ideal screen and actual screen. 03 0.3 (a) Derive the expression for critical speed of a ball mill. 07 (b) Show the difference between open circuit and closed circuit grinding with neat sketch. 07 0.4 (a) Define agitation and mixing. Enlist different types of flow pattern induced in an agitated vessel. 07 (b) What is alfort note on 'hydro cyclones'. 07 07 (c) Describe a continuous gravity thickener. 07	Q.1	(a)	Write a brief note on importance of Mechanical Operations in Chemical process	07
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