Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE VIII- SEMESTER– • EXAMINATION – SUMMER 2015

Subject Code:183503 **Date:13/05/2015**

Subject Name: Solid Fluid Operations

Time:10:30 am to 1:00 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)**	What is a power required to crush 100 ton/h of lime stone if 80 percent of the Feed passes a 2 inch screen 80% of the product a 1/8 inch screen? (The work index for lime stone is 12.74)	**07**
	(b)	How size, shape & density of particulate solids plays an important role in solid Fluid operations?	**07**
Q.2	**(a)**	Derive stocks' Law for gravity settling in sedimentation.	**07**
	(b)	Explain mechanism of settling with respect to feed inlet and surface area.	**07**
		OR	
	(b)	Explain working of Roller Mill and how does it differ from Attrition Mill	**07**
Q.3	**(a)**	Enlist three different mechanism of filtration and explain cake filtration in detail?	**07**
	(b)	Write a short note on fluidization.	**07**
		OR	
Q.3	**(a)**	Explain perekinetic & orthokinetic mechanism for flocculation?	**07**
	(b)	Explain terms: flooding, circulating fluidization & gas liquid fluidization.	**07**
Q.4	**(a)**	Write Ergun equation and explain its' modification for very viscous fluid as well as very low viscous fluid?	**07**
	(b)	Derive equation of minimum fluidization velocity for pressure drop?	**07**
		OR	
Q.4	**(a)**	Explain different principles of agglomeration palletizing	**07**
	(b)	Write short note on extrusion and granulating machines.	**07**
Q.5	**(a)**	Enlist and explain different equipments used for pneumatic and hydraulic conveying?	**07**
	(b)	Why silos and hoppers are so much important for particulate flow?	**07**
		OR	
Q.5	**(a)**	Write methods of storage and transport of powder.	**07**
	(b)	Write general applications of Solid fluid Operations in your respective branch?	**07**

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