

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VIII (NEW) EXAMINATION – WINTER 2020****Subject Code:2180508****Date:21/01/2021****Subject Name:Solid-Fluid Operations****Time:02:00 PM TO 04:00 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	MARKS
Q.1 (a) Classify the solid-fluid operations.	03
(b) Differentiate between hindered and free settling.	04
(c) Write in brief about static mixture and intensive mixture.	07
Q.2 (a) Write the application of fluidization in chemical industry.	03
(b) Differentiate between Particulate fluidization and Bubbling fluidization.	04
(c) Define fluidization. Explain the condition of or fluidization with suitable diagram?	07
Q.3 (a) Explain the need of transportation devices in chemical industries?	03
(b) Classify the various transportation devices and briefly explain the pneumatic transportation.	04
(c) What is the need for scale up of agitated vessel? Explain the steps involved in agitation vessel scale up?	07
Q.4 (a) What is the principle of cyclone separator? List the application of cyclone separator.	03
(b) Discuss the scope of various conveyer used in chemical industries.	04
(c) What is the importance of agitation in chemical industries? Classify the agitators with their applications.	07
Q.5 (a) Differentiate between constant rate and constant pressure filtration.	03
(b) Explain the principle of Sink and float method?	04
(c) Explain the principle, working, construction and application of plate and frame filter?	07
Q.6 (a) Differentiate between clarifier and classifier.	03
(b) Discuss the batch sedimentation.	04
(c) Explain the principle, working, construction and application of rotary filter?	07
Q.7 (a) Draw the drying curve and mention the important regions.	03
(b) What is Leaching? Discuss the importance of leaching operations.	04
(c) Explain working, construction and application of fluidized bed reactor?	07
Q.8 (a) Explain the principle of crystallization with suitable diagram?	03
(b) Discuss the factor affecting the crystal growth.	04
(c) Explain working, construction and application of slurry bed reactor?	07
