

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 5 – EXAMINATION – SUMMER 2026

Subject Code: 3150505

Date: 09/06/2026

Subject Name: Particle and Fluid Particle Processing

Time: 02:30 PM TO 05:00 PM

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. Simple and non-programmable scientific calculators are allowed.**

- Q.1** (a) State the purposes of agitation of liquid in chemical industries. **03**
(b) State classification of solid-fluid operations. **04**
(c) Explain various types of fluidization in detail. **07**
- Q.2** (a) List six applications of crystallisation operation. **03**
(b) Define Mesh Number and Volume Mean Diameter. **04**
(c) With neat diagram explain batch sedimentation test in detail. **07**
- OR
- Q.2** (c) Explain construction and working of Bollman extractor for leaching operation. **07**
- Q.3** (a) Define: (i) critical moisture content (ii) magma (iii) and mesh number **03**
(b) With neat sketch explain working of Tray drier for solids. **04**
(c) Discuss Kynch theory for design of continuous thickener. **07**
- OR
- Q.3** (a) Give two purposes of screen analysis. **03**
(b) Outline the various purpose of agitation of liquids in chemical engineering. **04**
(c) Explain the scale up of the agitated vessel. **07**
- Q.4** (a) Differentiate between filter aids and filter medium? **03**
(b) List out basic requirement of septum in chemical industries? **04**
(c) Write short note on Freeze drying. **07**
- OR
- Q.4** (a) Define Froude number and give its significance. **03**
(b) Explain sink and float method. **04**
(c) Discuss construction and working of helical element static mixture. **07**
- Q.5** (a) Write brief not on homogeneous nucleation. **03**
(b) Write a short note on hydraulic transport. **04**
(c) Explain in detail about slurry transportation. **07**
- OR
- Q.5** (a) State names of three mechanism of filtration. **03**

(b) Write in brief about intensive mixers.

04

(c) With neat diagram explain construction and working of rotary drum vacuum filter.

07
