

working of Tabular centrifuge.

- Q.4 Give the constructional & working detail of plate & frame filter press with neat of clean sketch.
- Q.5 With neat and labelled Sketch explain the construction and working of a fluid energy mill.
- Q.6 Write in detail how you can characterized single solid particles? Define in detail.
- Q.7 Write short note on any two of the following:-
- (a) Shell and leaf filters.
  - (c) Sorting classifier.
  - (c) Dodge crusher.
  - (d) Rittinger's law, Bond's law, and kick's law.

No. of Printed Pages : 4

Roll No. .... 120533/030533/116836

**3rd Sem. / Chemical Engg. (SPI paint Tech)**

**Subject : Mechanical operations**

Time : 3 Hrs.

M.M. : 100

**SECTION-A**

**Note:** Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

- Q.1
- a) Define Grinding.
  - b) Define Crushing.
  - c) Define Crushing Efficiency.
  - d) What is particle size range for coarse particles?
  - e) What do you mean by equivalent diameter used to express the particle size?
  - f) Define sedimentation.
  - g) Why doctor blade is used in continuous rotary vacuum filter.
  - h) Which apparatus is used for separating the particles of different densities.
  - i) Name any one mixer used for mixing of

plastic solids.

- j) Define the term size reduction.
- k) Give the principle of cyclone separation.
- l) Name any three types of screens used for solid particles.
- m) Define mesh no.
- n) Mention any one requirement for good septum.
- o) Give the name of any two grinder.
- p) What is thickener?
- q) What is Grizzly?
- r) Why gyrating screen is named so?

### SECTION-B

**Note:** Short answer type questions. Attempt any ten parts 10x4=40

- Q.2
- i) Explain working of cyclone separator in detail.
  - ii) Give the working of colloid mill.
  - iii) Explain the mechanism of filtration.
  - iv) Write the expression for power required by machine.

(2) 120533/030533/116836

- v) Define Specific surface of mixture.
- vi) Write the working of ball mill with suitable diagram.
- vii) Differentiate between thickener and clarifier.
- viii) Define Kneader, disperser of masticators
- ix) Define screen effectiveness and its expression also.
- x) Describe muller mixer for mixing paste.
- xi) What do you understand by batch process?
- xii) List different types of agitators used in mixer. Also make a neat and clean sketch of any one.
- xiii) Explain the function of vacuum in filtration.
- xiv) Explain the working of hydro-cyclone.
- xv) What are the three properties of particulate masses.

### SECTION-C

**Note:** Long answer type questions. Attempt any three questions. 3x10=30

- Q.3 Explain with neat sketch the construction and

(3) 120533/030533/116836