

- Q.30 What is centrifugal settling process?
- Q.31 Explain mixing of solids and pastes.
- Q.32 Explain two arm kneader, with suitable diagram.
- Q.33 Make a flow sheet for closed circuit grinding.
- Q.34 What is mechanical efficiency?
- Q.35 What is screen effectiveness?

#### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Derive the empirical relation for Rittinger's Bond's and Kicks's law.
- Q.37 Explain the working of cell and leaf filter press with suitable diagram.
- Q.38 Write short notes on the following :
- Sedimentation
  - Tabular Centrifuge
  - Toothed Roll Crusher
  - Differential analysis

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**3rd Sem / Chemical (P & P), Chem. Engg. (Spl. Paint Tech.), Chem. Engg. (Spl. Polymer Engg.)**  
**Subject:- Mechanical Operations**

Time : 3Hrs.    M.M. : 100

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 Which is a type of mechanical operation?
- Size reduction
  - Clarification
  - Screening
  - All
- Q.2 Choose the standard screen.
- McCabe
  - Camp
  - Treybal
  - Tyler
- Q.3 Which is best for fine separation ?
- Rake classifier
  - Dorr classifier
  - Tumbler mill
  - None
- Q.4 Which has the lower efficiency ?
- Impeller mixer
  - Agitator mixer
  - Propeller
  - None
- Q.5 Which of the following is best for kneading ?
- Agitator
  - Sigma

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- c) Impeller                      d) None
- Q.6 Which gives the total volume of the particles?
- a)  $M/P_p$                       b)  $Mv/P_p$
- c)  $D_p/P_p$                       d) None
- Q.7 Which of the following works on principle of compression?
- a) Rod mill                      b) Blake Jaw Crusher
- c) Knife cutter                      d) None
- Q.8 Choose the principle of mixing.
- a) Centrifugal force                      b) Perpendicular force
- c) Sheer force                      d) All
- Q.9 Mixing involves \_\_\_\_\_?
- a) Solid Liquid                      b) Solid Gas
- c) Gas liquid                      d) Solid Liquid Gas
- Q.10 Which is the correct unit of velocity?
- a)  $S^{-1}$                       b)  $MS^{-1}$
- c)  $M$                       d)  $M^3S^{-1}$

### SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 Which material is called heterogeneous mixture?
- Q.12 Name any one type of storage of solid.

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- Q.13 Define mesh number.
- Q.14 How many jaws contain Jaw Crusher?
- Q.15 Which action gives exact size and shape?
- Q.16 Maximum product size of Blake Crusher is \_\_\_\_\_.
- Q.17 What is the other name of Grizzly?
- Q.18 48x120 inch screen (vibrating screen) draw about \_\_\_\_\_ energy.
- Q.19 What is  $D_p$  in  $\varphi_s = 6V_p/D_p S_p$ ?
- Q.20 The number of particle in the sample N is \_\_\_\_\_.

### SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

- Q.21 Define the principle on which Ball mill works.
- Q.22 Explain the use of crusher.
- Q.23 Describe the principle on which screening is based.
- Q.24 Define Bond's law.
- Q.25 Draw a neat sketch of Jaw crusher.
- Q.26 Explain Tyler standard screen series.
- Q.27 List various types of screening equipment.
- Q.28 Why filter aids are used?
- Q.29 Write a note on thickness.

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