

- 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 :
 a) Sedimentation
 b) Tabular Centrifuge
 c) Toothed Roll Crusher
 d) 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?
 a) Size reduction b) Clarification
 c) Screening d) All
- Q.2 Choose the standard screen.
 a) McCabe b) Camp
 c) Treybal d) Tyler
- Q.3 Which is best for fine separation ?
 a) Rake classifier b) Dorr classifier
 c) Tumbler mill d) None
- Q.4 Which has the lower efficiency ?
 a) Impeller mixer b) Agitator mixer
 c) Propeller d) None
- Q.5 Which of the following is best for kneading ?
 a) Agitator b) Sigma

- 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.

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.