

- Q.26 Define Rittinger law.  
 Q.27 What are ultrafine grinders.  
 Q.28 Describe mechanical separation.  
 Q.29 What is screen capacity?  
 Q.30 Explain the mechanism of filtration?  
 Q.31 Draw flow sheet for continuous vacuum filtration.  
 Q.32 What is septum?  
 Q.33 Write a note on clarifying filters.  
 Q.34 What is nozzle discharge centrifuge?  
 Q.35 Explain thickeners.

#### **SECTION-D**

- Note:** Long answer type questions. Attempt any two questions out of three questions.  $(2 \times 10 = 20)$   
 Q.36 Explain characterization of solid particles, also find the expressions for specific surface of mixture.  
 Q.37 Explain in detail rotary drum vacuum filter with neat sketch.  
 Q.38 Write short note any two of the following.

- a) Expression for power required by machine
- b) Screen effectiveness
- c) Filter press
- d) Kneader & disperser blades

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**3rd Sem / Chem, 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  $(10 \times 1 = 10)$

- Q.1 For a spherical particle of diameter  $D_p$ ,  $\phi_s = ?$   
 a) 1                          b) 2  
 c) 3                            d) None  
 Q.2 Testing sieves are made of \_\_\_\_\_  
 a) Woven wire                b) Filter cloth  
 c) Fibers                     d) None  
 Q.3 Which action of size reduction gives definite particles size & shape  
 a) Compression                b) Impact  
 c) Rubbing                    d) Cutting  
 Q.4 In which year crushing law proposed by Rittinger?  
 a) 1866                        b) 1867  
 c) 1895                        d) 1888

Q.5 Which mill is used for small sized particles?

- a) Colloid mill
- b) Roller mill
- c) Ball mill
- d) None

Q6 How many jaw are there in jaw crusher?

- a) 1
- b) 2
- c) 3
- d) 4

Q7 On which principle screening works?

- a) Size
- b) Shape
- c) Reduction
- d) None

Q8 Which filter are specially useful in waste treatment?

- a) Precoat filter
- b) Belt filter
- c) Vacuum filter
- d) None

Q.9 Mixing involves \_\_\_\_\_?

- a) Solid liquid gas
- b) Solid liquid
- c) Solid gas
- d) Gas liquid

Q.10 Separation of solids from suspension in liquid by screen means is called as \_\_\_\_\_

- a) Leaching
- b) Extraction
- c) Distillation
- d) Sedimentation

## SECTION-B

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

Q.11 Which particles are called regular particles.

Q.12 Homogenous mixture contain which type of particles?

Q.13 What is A in  $A = N S p$ ?

Q.14 Write any one purpose of crushing of particles.

Q.15 Name any one crushing law.

Q.16 Write unit of pressure.

Q.17 Mention any one use of attrition mill.

Q.18 What is the other name of grizzly?

Q.19 Where mechanical classifiers are used?

Q.20 Which is best mixers for non-cohesive solids?

## SECTION-C

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

Q.21 Define sphericity for a non-spherical particles?

Q.22 What is Tyler standard screen series?

Q.23 Differentiate bulk & bin storage.

Q.24 Draw a neat sketch of pony mixer.

Q.25 Write a note on efficiency.