

- Q.25 Describe the zeroth law of thermodynamics.
- Q.26 Explain open and closed system with example.
- Q.27 Define Humid Volume and Humid heat.
- Q.28 Draw the sketch of cycle separator explains its working.
- Q.29 Write a short note on Blake Jaw crusher.
- Q.30 Explain Isothermal process of thermodynamics.
- Q.31 Explain the overall heat transfer coefficient.
- Q.32 Explain the Principle & working of grinder.
- Q.33 Define dry bulb and wet bulb temperature.
- Q.34 Write the difference between crushing and grinding.
- Q.35 Write a short note on Jaw Crusher.

#### SECTION-D

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

- Q.36 Explain heat conduction through the composite wall in detail.
- Q.37 Explain binary distillation with neat sketch.
- Q.38 Explain First law and Second law of thermodynamics.

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**4th Sem.**

**Branch : Plastic**

**Sub.: Fundamentals of Chemical Engineering/Unit Operation**

Time : 3 Hrs.

M.M. : 100

#### SECTION-A

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

- Q.1 The absolute zero pressure can be attained at a temperature of
- a)  $0^{\circ}\text{C}$       b)  $273^{\circ}\text{C}$   
c) )Kelvin      d) None of these
- Q.2 Heat transfer takes place in liquids and gases in essentially due to
- a) Conduction      b) Convection  
c) Radiation      d) All of these
- Q.3 Perfect insulator conduct heat and electricity
- a) True      b) False
- Q.4 Heat transfer takes place according to which law?
- a) Newton's law of cooling  
b) Second law of thermodynamics  
c) Newton's second law of motion  
d) First law of thermodynamics

- Q.5 The efficiency of the ideal screens is \_\_\_\_\_.  
 a) Unity                                      b) Infinity  
 c) Zero                                         d) Can't be determined
- Q.6 The heat is transferred by conduction, convection and radiation simultaneously in  
 a) Melting of Ice  
 b) Boiler furnaces  
 c) Condensation of steam in condenser  
 d) None of these
- Q.7 Which of the following parameters does not characterize the thermodynamic state of matter?  
 a) Temperature                                b) Pressure  
 c) Work    d) Volume
- Q.8 Which of the following is a type of coarse crusher?  
 a) Rod mill                                        b) Stamp battery  
 c) Jaw crusher                                   d) Dicer
- Q.9 Which of the following works principle of compression?  
 a) Rod mill                                        b) Knife cutter  
 c) Blake jaw crusher                          d) Gyratory Crusher
- Q.10 What is the unit of diffusion coefficient?  
 a)  $m^2$     b) s  
 c)  $m^2s$     d)  $m^2/s$

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## SECTION-B

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

- Q.11 Define mass transfer.  
 Q.12 Define free convection.  
 Q.13 Define crushing.  
 Q.14 Define heat.  
 Q.15 Define Fick's law.  
 Q.16 Define insulator.  
 Q.17 Define the Carnot cycle.  
 Q.18 Define isochoric process.  
 Q.19 Define humidity.  
 Q.20 Define mesh number.

## SECTION-C

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

- Q.21 State Kick's law and bonds in crushing.  
 Q.22 Explain Fourier law of heat conduction for single conductive wall.  
 Q.23 Define the principle of ball mill and give its use.  
 Q.24 Define conduction and convection with suitable examples.

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