Q.26 Draw a neat sketch of shell and tube heat exchangers.

Q.27 Explain working of cyclone separator.

Q.28 Define wet and dry bulb temperature.

Q.29 State various laws of size reduction.

Q.30 Explain working of filter press.

Q.31 State first and second law of thermodynamics.

Q.32 Explain the basic principle of diffusion.

Q.33 Give points of difference between crushing and grinding.

Q.34 Explain specific heat and total heat of system.

Q.35 Explain steam distillation process.

SECTION-D

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

Q.36 Explain construction and working of jaw crusher with diagram.

Q.37 Write short note on:

a) Rault's law

b) Humidification

Q.38 Derive an expression for heat conduction through composite wall.

4th Sem / Plastic Engineering
Subject:- Fundamental of Chemical Engineering / Unit Operation

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 In which one of the following, Heat transfer takes place without any Conduction or Convection?

a) Condenser
b) Recuperators
c) Cooling tower
d) Shell and Tube heat exchanger

Q.2 Which one is having the lowest emissivity?

a) Snow
b) White marble
c) Concrete
d) Polished stainless steel

Q.3 Which among the following is always true for mass transfer to occur?

a) Difference in concentration
b) Difference in Pressure
c) Difference in temperature
d) Difference in chemical potential

Q.4 Heat transfer by_____may not necessarily

require the presence of a medium.

a) Conduction b) Natural convection
c) Forced convection d) Radiation

Q.5 For an ideal black body_____.

a) Absorptivity = 1 b) Reflectivity = 1
c) Emissivity = 0 d) Transmissivity = 1

Q.6 Which of the following is the rate of heat transfer unit?

a) Watt b) Pascal
c) Joule d) Newton

Q.7 Stefan's block body radiation law can also be derived from _____law.

a) Kirchoff's b) Planck's
c) Fourier's d) None of these

Q.8 Radiator of an automobile engine is a _____ type of heat exchanger.

a) Co-current b) Cross-current
c) Counter-current d) Direct-contact

Q.9 The convective heat transfer coefficient in the laminar flow over a flat plate_____

a) Decreases with increase in free stream velocity
b) Increases if a denser fluid is used
c) Increases with distance
d) Increases if a higher viscosity fluid is used

Q.10 Which of the following works on principle of compression and impact?

a) Jaw crusher b) Gyratory crusher
c) Fine crusher d) Tramp crusher

SECTION-B

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

Q.11 In drawing process_____is removed from matter.

Q.12 Define entropy.

Q.13 Define open system.

Q.14 Define isothermal process.

Q.15 Name various modes of heat transfer.

Q.16 Convert 10°C to kelvin.

Q.17 Name two filtration equipment.

Q.18 Name two extensive properties.

Q.19 The process in which pressure remains constant is called_____.

Q.20 Define Kick's law of crushing.

SECTION-C

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

Q.21 Explain EMI filters and their uses.

Q.22 Discuss concept of Gibbs free energy.

Q.23 What is turbulent and laminar flow.

Q.24 2.5 m^3 of gas at 80KPa pressure extends a constant temperature to a final volume of 10 m^3. Find final pressure of gas.

Q.25 Define quasi-static process.