Q.29 Describe briefly about open pan evaporator in details.

Q.30 Draw labelled diagram for shell and tube heat exchanger.

Q.31 Discuss the significance of Seider and Tate's equation.

Q.32 Write the significance of Reynolds number and Prandtl number.

Q.33 Explain the concept of LMTD.

Q.34 Discuss about unsteady state heat transfer in conduction.

Q.35 Explain the effect of tempereature on thermal conductivity.

SECTION-D

Note : Long Answer type question. Attempt any two questions. (2x10=20)

Q.36 Explain the construction and working of parallel flow 1-2 shell and tube heat exchanger with neat and clean diagram.

Q.37 Explain the construction and working of forced circulation vertical evaporator with neat clean diagram. Also write its industrial application.

Q.38 Write short note on (any two):

a) Grey body radiation

b) Critical thickness of insulation for cylinder.

c) Solar radiation

No. of Printed Pages : 4 180643-120643-116843

Roll No.....

4th Sem, **Branch :** ChemicalEngineering (P&P)

Subject : Heat Transfer

Time : 3 Hrs. **M.M. : 100**

SECTION-A

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

Q.1 Unit of the rate of heat transfer is

a) Joule b) Newton

c) Pascal d) Watt

Q.2 How many modes are in heat transfer?

a) One b) Two

c) Three d) Four

Q.3 Mark the matter with least value of thermal conductivity

a) Air b) Water

c) Ash d) Window glass

Q.4 Driving force of heat transfer is _____

a) Concentration difference

b) Temperature difference

c) Temperature

d) None of these

Q.5 Cork is a good insulator because

a) It is flexible b) It can be powdered
c) Low density d) It is porous

Q.6 What is the driving force for evaporation to take place?
a) Difference in partial pressure
b) Difference in pressure
c) Difference in concentration
d) Difference in temperature

Q.7 To calculate the temperature difference in a double pipe heat exchanger, we use _____
a) LMTD
b) Mean temperature difference
c) Median of the temperature difference
d) Square mean of the temperature difference

Q.8 Which is true regarding radiation?
a) Radiation travels only in medium
b) Radiation travels without any medium
c) Radiation travels in medium or without medium
d) None of these

Q.9 The absorptivity of black body equals to
a) 2 b) 1
c) 3 d) 4

Q.10 Transmission of heat i.e. Molecular is smallest in case of
a) Gases b) Liquids
c) Alloys d) Solids

SECTION-B

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

Q.11 Solid medium is required for _____.
Q.12 SI Unit of temperature _____.
Q.13 What 'h' stands for in heat-transfer.
Q.14 Write the value of Stefan Boltzmann constant.
Q.15 Unit of overall heat transfer coefficient is _____.
Q.16 Representation of 1-2 in shell and tube Heat exchanger is _____.
Q.17 Define parallel flow.
Q.18 Economy of single effect evaporator is always less than_____.
Q.19 A body that reflects all the incident thermal radiations is called a _____.
Q.20 Write name of any one insulating materials.

SECTION-C

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

Q.21 Discuss about the Fourier's law of heat conduction.
Q.22 Write the concept of heat-transfer coefficient.
Q.23 Write the concept of thermal conductivity of materials.
Q.24 Explain the concept of convection.
Q.25 Discuss about the insulation. Also write some important properties of insulating materials.
Q.26 Write the significance of Grasshof number and Stanton number.
Q.27 Discuss about the Stefan-Boltzmann law.
Q.28 Discuss about the flow pattern in heat exchanger.