Q.34 What is insulation ? Write any 2 insulating materials

Q.35 Write limitations of Weins's law.

SECTION-D

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

Q.36 A radiator in a domestic heating system operates at a surface temperature 60^0 c Calculate the heat flux at the surface of the radiator if it behaves as a black body.

Q.37 Derive the expression for critical thickness of insulation.

Q.38 Write short notes on any 2 of the following:

a.) Steady state heat conduction through the plain wall.

b.) Physical properties of insulating materials.

c.) Peclet number.

d.) Absorption in a gaseous medium.

Roll No. .....

3rd Sem / Chemical Engg. (P&P)
Subject:- Heat Transfer-1

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Which mode of heat transfer does not require medium?

a) Conduction b) Convention
c) Radiation d) None

Q.2 Why glass wool is used?

a) For Insulation b) For Conduction
c) For Convection d) Radiation

Q.3 What is the Sl unit of heat flux?

a) Watt meter square b) Watt
c) Watt/m^2 d) Watt/ meter

Q.4 What is hl/k

a) Reynold's number b) Grashof number
c) Prandtl number d) Nusselt Number

Q.5 How many types of modes of heat transfer

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

Q.6 What affects reynold's number?

a) Waves b) Turbulent flow

c) Bubbles d) Flow

Q.7 Chosse the unit of Peclet number.

a) Meter b) Joule

c) Unit less d) Meter/sec

Q.8 Select symbol over all heat transfer coefficient.

a) A b) H

c) U d) None

Q.9 Which type of flow give higher heat transfer?

a) Parallel flow b) Counter flow

c) Mix flow d) None

Q.10 Identify the very good insulator

a) Saw dust b) Glass Wool

c) Cork d) Asbestos sheet

SECTION-B

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

Q.11 Write one example of conduction.

Q.12 Which flow is called steady state flow?

Q.13 Write any one effect of temperature on thermal conductivity.

Q.14 Mention any two insulating material.

Q.15 What is the unit of Stefan blotzamn constant?

Q.16 Write view factor formula.

Q.17 Which property is important for insulating material?

Q.18 Mention one difference in free and forced convection.

Q.19 Where boiling is important?

Q.20 Give one application of kirchoff's' law.

SECTION-C

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

Q.21 Write a note on modes of heat transfer.

Q.22 What is the concept of unsteady state heat transfer?

Q.23 On which assumptions fourier law is based?

Q.24 Define effect of temperature on thermal conductivity of solids.

Q.25 Describe steady state heat conduction through a variable area.

Q.26 Mention the concept of heat transfer coefficient.

Q.27 Write a note on dimensional analysis.

Q.28 Define Reynold number.

Q.29 Differentiate boiling and evaporation.

Q.30 Describe Wein's displacement law.

Q.31 What is radiative heat exchange between black bodies?

Q.32 State radiation field.

Q.33 Explain emission in a gaseous medium.