Q.27 Derive the equation of fourier's law for the heat transferred by conduction.

Q.28 Define radiation shield and kirchoff's law.

Q.29 Define unsteady state of heat conduction.

Q.30 Define monochromatic emissive power.

Q.31 Draw a neat sketch of contact condenser.

Q.32 Mention the advantages of air cooled condenser over water cooled condensers.

Q.33 Write the types of surface condensers.

Q.34 Explain the constructional details and working of shell and tube condenser.

Q.35 Mention any five physical properties of insulating materials.

SECTION-D

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

Q.36 Explain in detail the critical thickness of insulation for cylinder and sphere.

Q.37 Calculate Reynolds's number with the following data: D=20 cm, V =5 m / sec, P = 14500 kg/m^3, m= 0.0375kg/ m sec.

Q.38 Derive an expression for heat conduction through a cylinder surface.

Roll No. .....

3rd Sem / Chemical Engineering (P&P)
Subject:- Heat Transfer - I

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Drop wise condensation usually occurs on_____ surface.

a) Oily b) Glazed

c) Smooth d) Coated

Q.2 _____has the maximum thermal conductivity.

a) Silver b) Ice

c) Aluminum d) Diamond

Q.3 Insulation is used to_____heat flow.

a) Permit b) Prevent

c) Increase d) None

Q.4 Boiling refers to a change from _____to a _____ phase.

a) Solid, Liquid b) Vapor, Liquid

c) Liquid Solid d) Liquid Vapor

Q.5 What affects Reynold's number?

a) Waves b) Bubbles

c) Turbulent flow d) Foam

Q.6 Choose type of condenser.

a) Contact b) Tube

c) Pitch d) Lankashire

Q.7 _____is the poorest conductor of heat.

a) Gold b) Mercury

c) Lead d) Metal

Q.8 By which mode heat is transferred in vacuum?

a) Conduction b) Evaporation

c) Boiling d) Melting

Q.9 How many types of convection are there?

a) 4 b) 3

c) 2 d) 1

Q.10 What is the SI unit of thermal resistance?

a) KW b) K/W

c) WK^2 d) None

SECTION-B

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

Q.11 What is steady state conduction?

Q.12 Give the formula for calculating conduction through flat wall.

Q.13 Give the equation for Nusselt Number.

Q.14 Define convection.

Q.15 Mention any two uses of insulators.

Q.16 Define Stefan boltzman's law

Q.17 Define perfect black body.

Q.18 What is the reciprocal of thermal resistance?

Q.19 What is radiation?

Q.20 What is Reynold's number?

SECTION-C

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

Q.21 Explain radiative heat exchange between black bodies.

Q.22 What is the difference between free and forced convection?

Q.23 Mention any 5 points about solar radiation.

Q.24 What is empirical correlation for free and forced convection?

Q.25 Define Wein's displacement law and Grey body.

Q.26 What is grasshof number and peclet number.