Q.24 What is dimensional Analysis? Explain and dive the application of dimensional analysis for forced convection {Nu=f(Re, Pr.)}. (CO3)

Q.25 Write short note on the following : (CO4)

a) Kirchoff's law

b) View Factor

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Roll No. .....

4th Sem.

Branch : Chemical

Sub. : Heat Transfer Operations-I

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Which of the following is a method of heat transfer? (CO1)

a) Convection b) Radiation

c) Conduction d) All of the mentioned

Q.2 Driving force of heat transfer is _____. (CO1)

a) Concentration difference

b) Temperature difference

c) Both A and B

d) None of these

Q.3 Heat tansfer by _____may not necessarily require the presence of a medium (CO1)

a) Conduction b) Convection

c) Radiation d) None of these

Q.4 The method through which the entire pot of water boils on that hot stove is (CO1)

a) Conduction b) Convection

c) Radiation d) Evaporation

Q5. Which of the following is the best conductor of heat? (CO1)

a) Air b) Plastic

c) Water d) Aluminum

Q.6 The absorptivity of black body equals to (CO4)

a) 2 b) 1

c) 3 d) 4

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 _____ is fastest mode of heat transfer. (CO1)

Q.8 Define heat transfer? (CO1)

Q.9 For natural convection {Nu = F(....., Pr). (CO3)

Q.10 Write one example of unsteady state heat transfer flow. (CO1)

Q.11 Write one example of good insulator. (CO1)

Q.12 Write the one purpose of radiation shield. (CO4)

SECTION-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Define heat transfer? Write the examples of daily life uses. (CO1)

Q.14 Explain the concept of conduction. Write its example. (CO2)

Q.15 Discuss about the Newton law of cooling's. (CO1)

Q.16 Write the concept of heat-transfer coefficient with its CGS & MKS unit system. (CO1)

Q.17 Differentiate between convection and radiation. (CO1)

Q.18 Discuss about the thermal conductivity. Also write its MKS unit. (CO1)

Q.19 Discuss the various factors depend on thermal conductivity. (CO2)

Q.20 What is insulation? Also write four insulating materials used in chemical Industries. (CO3)

Q.21 Write the significance of Reynolds number and Prandtl number. (CO3)

Q.22 Discuss about the Wein's displacement law. (CO4)

SECTION-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

Q.23 Drive the expression with assumptions for steady state one dimensional heat conduction through a cylinder. (CO2)