Q.21 What are ideal fluids? Define Reynold's number and write its formula. (CO1)

Q.22 Differenciate between free and forced convection. (CO2)

SECTION-D

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

Q.23 Write short notes on any four of the following.

(a) laminar flow (CO1)

(b) Fourier's law (CO2)

(c) Heterogeneous reaction (CO4)

(d) Unit Operation (CO1)

(e) Mass fraction (CO1)

(f) Crystallization (CO5)

Q.24 State Boyle's law and Charles's law. Derive the ideal gas law. (CO1)

Q.25 Explain various modes of heat transfer in detail along with Example and neat diagram. (CO2)

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Roll No. .....

1st Sem / Chemical

Subject : Introduction to Chemical Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 Mode of heat transfer in which molecules move from one position to another for energy transfer (CO2)

a) Conduction b) Convection

c) Radiation d) None of these

Q.2 Specific gravity of liquid is defined as (CO1)

a) Density of liquid / Density of water

b) Density of liquid x Density of water

c) Density of water / Density of liquid

d) Density of liquid x gravitational force

Q.3 Equipment for gas absorption is (CO5)

a) Tray Dryer

b) Packed absorption tower

c) Crystallizer

d) Distillation column

Q.4 Which of the following is unit process ? (CO1)

a) Filtration b) Urea manufacturing

c) Cutting d) Seiving

Q.5 Which of the following reaction moves in both direction that is forward and backward (CO4)

a) Homogeneous reaction

b) Reversible reaction

c) Irreversible reaction

d) Heterogeneous reaction

Q.6 Which of the following fluid follows newton's law of viscosity ? (CO1)

a) Dialatent fluid

b) Pseudo plastic fluid

c) Non-Newtonian Fluid

d) Newtonian fluid

SECTION-B

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

Q.7 Define Amagats's Law (CO1)

Q.8 Write the S.I. unit of density (CO1)

Q.9 Write the formula for specific volume. (CO1)

Q.10 Write any two types of boilers (CO5)

Q.11 Define diffusion (CO3)

Q.12 Write the chemical formula of urea. (CO5)

SECTION-C

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

Q.13 Define compressible and incompressible fluids. (Co1)

Q.14 State Stefan-Boltzmann's law and define black body. (CO2)

Q.15 Define Amagats's law and Henry's law (CO1)

Q.16 Write any four applications of chemical Engineering (CO1)

Q.17 Differentiate between endothermic and exothermic reactions. (CO4)

Q.18 Define rate of reaction and rate constant. Write full form of CSTR and PFR reaction. (CO4)

Q.19 Write short notes on - (CO5)

(a) Distillation

(b) Humidification

Q.20 Define mass transfer and Fick's law of diffusion. (CO3)