

Q.24 Explain various modes of heat transfer with examples.

Q.25 Explain following mass transfer operations:

- a) Distillation
- b) Extraction
- c) Absorption
- d) Adsorption

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Roll No.

1st Year / Chemical Engineering

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 Driving force for mass transfer is

- a) Concentration difference
- b) voltage difference
- c) pressure difference
- d) Temperature difference

Q.2 Which one of the following form of water have the lowest value of thermal conductivity.

- a) Boiling Water b) Steam
- c) Solid ice d) Melting ice

Q.3 Density is the ratio of mass upon

- a) Weight b) Gravity
- c) volume d) none of these

- Q.4 What is chemical reaction rate?
a) chemical property b) physical property
c) intensive property d) extensive property

Q.5 Which of the following urea formula

- a) $\text{CH}_4\text{N}_2\text{O}$ b) CH_5N_2
c) $\text{CH}_6\text{N}_2\text{O}$ d) CH_3N_2

Q.6 Which is the fastest mode of heat transfer from the following.

- a) Evaporation b) Conduction
c) Convection d) Radiation

SECTION-B

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

- Q.7 Define free convection.
Q.8 Give one example of forced convection.
Q.9 Humidification is _____ of moisture from air.
Q.10 Give one example of reversible reaction.
Q.11 Write the chemical formula of Ammonia.
Q.12 Define heat transfer.

SECTION-C

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

- Q.13 Classify Condenser.
Q.14 Explain Conduction, Convection and Radiation.
Q.15 Explain Fourier's law of heat transfer.
Q.16 What is thermal conductivity. Write its S.I unit.
Q.17 Write the properties and uses of urea.
Q.18 Differentiate between homogeneous and heterogeneous reaction.
Q.19 Write the functions of boilers and heat exchangers.
Q.20 Draw neat and clean diagram of Distillation column.
Q.21 Write a note on Elementary and Non Elementary reaction.
Q.22 What is Leaching operation. Explain.

SECTION-D

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

- Q.23 Explain manufacturing process of Urea with flowsheet.