

SECTION-D

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

- Q.23 Write the names of basic type of reactors and explain PFR in detail.
- Q.24 Write the general statements of first law of thermodynamics and derive first law of steady state flow process (open system)
- Q.25 Explain vapour compression refrigeration cycle with neat sketch.

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3rd Sem / Chemical

Subject : Chemical Thermodynamics & Reaction Engineering

Time : 3 Hrs.

M.M. : 60

SECTION-A

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

- Q.1 The envelope which separates thermodynamic system from surrounding is known as :
- a) Boundary b) Universe
c) State d) Process
- Q.2 Enthalpy is the heat supplied to a system at:
- a) Constant volume b) Constant pressure
c) Constant temperature d) all of these
- Q.3 Which of the following is a path function?
- a) Pressure b) Heat
c) Temperature d) Enthalpy

Q.4 In refrigeration temperature of system is kept _____ that of surrounding.

- a) Below b) Above
c) Equal to d) Constant

Q.5 Which factors does not affect chemical equilibrium:

- a) Concentration b) Temperature
c) Pressure d) Catalyst

Q.6 First law of thermodynamics deals with:

- a) Conservation of energy
b) Conservation of mass
c) Conservation of force
d) Conservation of momentum

SECTION-B

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

Q.7 Define system.

Q.8 What is CSTR.

Q.9 Define characteristic equation.

Q.10 What is polytropic process.

Q.11 Write ideal gas law.

Q.12 Define endothermic reaction.

SECTION-C

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

Q.13 Write a short note on rate of reaction and rate constant.

Q.14 Write the differences between Order of reaction and molecularity.

Q.15 What is Heat Pump and its CoP.

Q.16 Write differences between state function and path function.

Q.17 Define refrigerant. Write commonly used refrigerants.

Q.18 Write a short note on third law of thermodynamics.

Q.19 Write the definition and example of homogenous and heterogeneous reaction.

Q.20 Write equation of state and Vanderwaals equation.

Q.21 Write the concept of entropy.

Q.22 Write differences between batch reactor and semi-batch reactor.