

SECTION-D

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

- Q.23 What is order of reaction? Describe the use of integral method to determine the order of reaction with the help of a suitable example.
- Q.24 Describe the construction and working of a continuous stirred tank reactor in detail with the help of a neat diagram.
- Q.25 Explain the vapour compression refrigeration cycle in detail along with its advantages and disadvantages.

No. of Printed Pages : 4

Roll No.

220531

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 Which of the following is an example of closed system?
- a) car engine
 - b) liquid cooling system of a car
 - c) boiler in a steam power plant
 - d) air compressor
- Q.2 Le-Chatelier's principle applies to
- a) physical equilibrium
 - b) chemical equilibrium
 - c) all systems at equilibrium
 - d) none of these
- Q.3 Which of the following represents a thermodynamic process in which pressure remains constant?
- a) isobaric process b) isometric process
 - c) isothermal process d) adiabatic process

Q.4 Which one of the following is an extensive property?

- a) surface tension b) refractive index
- c) internal energy d) viscosity

Q.5 Internal energy does not include

- a) nuclear energy
- b) potential energy
- c) energy due to gravitational pull
- d) all of these

Q.6 In a homogeneous chemical reaction, the rate of reaction can be affected by?

- a) temperature only b) pressure only
- c) composition only d) all of these

SECTION-B

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

Q.7 What is S.I. unit of internal energy?

Q.8 Define the semi-batch reactor?

Q.9 Write the name of any one intensive property.

Q.10 Define the conversion.

Q.11 What is reversible reaction?

Q.12 State Boyle's law.

(2)

220531

SECTION-C

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

Q.13 What is the difference between intensive properties & extensive properties?

Q.14 Explain the effect of temperature on chemical equilibrium.

Q.15 Discuss the different types of processes used in thermodynamics in brief.

Q.16 Define the enthalpy. What is its significance?

Q.17 Discuss the limitations of the first law of thermodynamics.

Q.18 State and explain the zeroth's law of thermodynamics in brief.

Q.19 Explain the concept and importance of half life period.

Q.20 Describe a heat engine and its efficiency in brief.

Q.21 What is the difference between a catalytic reaction and a non-catalytic reaction?

Q.22 Describe a constant volume batch reactor in brief.

(3)

220531