Q.31 State and Explain Roult's law.

Q.32 Discuss the applications of third law thermodynamics in brief.

Q.33 Prove that for an isobaric process, $dQ = dH = CpdT$.

Q.34 Differenciate between Homogeneous system and Heterogeneous system with Example.

Q.35 Explain in brief Gibbs free energy and enthalpy of the system.

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x10=20)

Q.36 Explain in Detail vapour absorption refrigeration cycle with the help of neat diagram.

Q.37 Write short notes on any two of following:

a) Vander Waal's equation

b) First law of thermodynamics

c) Third Law of thermodynamics

d) Adiabatic process

Q.38 Discuss about Carnot cycle in detail with neat and clean diagram.

No. of Printed Pages : 4 180542/120542/030542/116845

Roll No. .....

4th Sem. Branch : Chem, Chemical Engineering (Spl. Paint Tech), Chem Engg. (Spl. Polymer Engg.)

Subject : Chemical Engineering Thermodynamics/ Engg. Thermody

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory. (10x1=10)

Q.1 Isothermal process means a constant _____ process.

a) Temperature b) Pressure

c) Volume d) Entropy

Q.2 Which of the following is path function.

a) Enthalpy b) Heat

c) Entropy d) Internal Energy

Q.3 Which of the following is Extensive Property.

a) Specific Enthalpy b) Temperature

c) Pressure d) Entropy

Q.4 First law of thermodynamics deals with the law of Conservation of

a) Mass b) Momentum

c) Energy d) None of these

Q.5 A system which consists of more than one phase.

a) Homogeneous system b) Heterogeneous system

c) Open system d) Closed system

Q.6 For an isenthalpic process _____ Constant.

a) Temperature b) Pressure

c) Entropy d) Enthalpy

Q.7 Carnot cycle consist of _____ processes.

a) One b) Two

c) Three d) Four

Q.8 A system in which neither mass nor energy transfer takes place with the surrounding.

a) Open system b) Closed system

c) Isolated system d) Homogeneous system

Q.9 Thermodynamics deals with _____ state.

a) Equilibrium b) Non equilibrium

c) Both A & B d) Neither A nor B

Q.10 For ideal gas internal energy is dependent on

a) Pressure b) Volume

c) Temperature d) None of these

Section-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Define system and surrounding.

Q.12 Define state function.

Q.13 Define Dalton's law.

Q.14 Write formula for efficiency of heat pump.

Q.15 Define Isometric process.

Q.16 Define Internal Energy.

Q.17 Write any-two Intensive properties.

Q.18 Define refrigeration.

Q.19 Define reversible process.

Q.20 Mention any two thermodynamic temperature Scales.

Section-C

Note: Short answer type Questions. Attempt any twelve questions out of fifteen Questions. (12x5=60)

Q.21 Explain in brief the limitations of first law of thermodynamics.

Q.22 Define Intensive and Extensive properties along with Examples.

Q.23 Derive the expression for work done for ideal gas undergoing reversible isothermal process.

Q.24 State the Kelvin plank and clausius Statement of Second law of thermodynamics.

Q25 Calculate the entropy change of ideal gas undergoing reversible isothermal mixing process.

Q.26 Define heat pump and calculate the Coefficient of performance of heat pump.

Q.27 Discuss in brief the commonly used refrigerants.

Q.28 Differenciate between open and closed system by giving suitable Example.

Q.29 Explain in brief Entropy change for irreversible process.

Q.30 Derive the equation of ideal gas law.