Q.26 Write a note on heat for ideal gas undergoing polytropic process ?

Q.27 What is the entropy change for reversible and irreversible process ?

Q.28 Define heat engine and its efficiency

Q.29 Mention the properties of reorients

Q.30 What is vapor compression refrigeration cycle ?

Q.31 Define partial pressure

Q.32 Define zeroth law of thermodynamics

Q.33 Differentiate between adiabatic and isothermal process

Q.34 Explain the variables affecting the rate of reaction

Q.35 5 moles of an ideal gas expand reversible to ten times its original volume at 27^0C. Calculate the change in entropy

SECTION-D

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

Q.36 Explain the basic concepts of chemical engineering thermodynamics

Q.37 Define and explain the significance of first, second and third law of thermodynamics

Q.38 write short note on any two of the following:

a) State & path functions
b) Vanderwaal's equation of state
c) Absorption refrigeration cycle
d) Amagat's law

4th Sem / Branch : Chemical, Chemical Engg. (SPL. Paint Tech.), Chemical Engg. (SPL. Polymer engg.)

Subject:- Chemical engineering thermodynamics/ Engg Thermodynamic

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Choose example of adiabatic process

a) Melting Ice
b) Evaporation of water
c) Sudden bursting of cycle tyre
d) None

Q.2 Henry's law is closely obeyed by a gas, when its _____ is extremely high.

a) Pressure b) Solubility
c) Temperature d) None

Q.3 No work is done by the system, when a reaction occurs at constant_____

a) Volume b) Temperature
c) Pressure d) None

Q.4 The unit of energy is the same as the unit of_____

a) Entropy b) Power
c) Work d) Pressure

Q.5 Third law of thermodynamic is concerned with the_____

a) Value of absolute entropy
b) Energy transfer
c) Direction of energy transfer
d) None

Q.6 For an ideal gas, the enthalpy_____pressure

a) Increases with b) Independent of
c) Decreases with d) None

Q.7 Free energy change at equilibrium is_____

a) Positive b) Indeterminate
c) Negative d) Zero

Q.8 _____decreases during adiabatic throttling of perfect gas

a) Entropy b) Temperature
c) Enthalpy d) Pressure

Q.9 Entropy change of mixing 2 liquid substance depends on _____

a) Molar concentration
b) Quantity (No. of moles)
c) Both A & B
d) None

Q.10 Melting of ice is example of _____ process

a) Adiabatic b) Isothermal
c) Isometric d) None

SECTION-B

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

Q.11 What is heterogeneous system ?

Q.12 Mention any one extensive property of intergal energy.

Q.13 Write one application of raoult's law

Q.14 State first law of thermodynamics for cyclic system

Q.15 Write one difference between isobaric and isothermal process

Q.16 Mention one application of joules experiments

Q.17 Mention any one limitation of first law of thermodynamics

Q.18 What is carnot cycle ?

Q.19 Write one application of third law of thermodynaics

Q.20 Write one application of dalton's law.

SECTION-C

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

Q.21 Differentiate closed and isolated system

Q.22 What is the concept of vanderwaal's equation ?

Q.23 What is ideal gas law ?

Q.24 Explain in detail the first law of thermodynamics for open system with example

Q.25 Name the various forms of energy