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4th Sem / Chem, Chem Engg. (Spl. paint. Tech.), Chem Engg. (Spl. Polymer Engg.)
Subject:- Chemical Engineering Thermodynamics/ Engg. Thermody.

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Unit of power is_____.
a) W b) J/S
c) W & J/S d) J

Q.2 1 pascal = _____ N/m^2.
a) 1 b) 133.32
c) 105 d) 104

Q.3 First law of thermodynamic is based on law of conservation of_____.
a) Energy b) Mass
c) Momentum d) None

Q.4 Select the largest unit of energy.
a) kelvin b) Joule
c) Calorie d) Erg

Q.5 Henry's law is closely obeyed by a gas, when its _____ is extremely high.
a) Pressure b) Solubility
c) Temperature d) None

Q.29 5 moles of an ideal gas expand reversible to ten times its original volume at 27°C. Calculate the change in entropy.

Q.30 What is absorption refrigeration cycle.

Q.31 Differentiate between isometric and isobaric process.

Q.32 Define equilibrium constant.

Q.33 Write a note on heat pumps.

Q.34 Write a note on work for ideal gas undergoing polytropic process.

Q.35 Define partial pressure.

SECTION-D

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

Q.36 Explain the performance of thermal systems used in industry.

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

Q.38 Write short notes on any two of the following:
a) State & path functions
b) Enthalpy
c) Vapor compression refrigeration cycle
d) Dalton's law

Q.6 In_____ thermodynamic process, heat is not exchanged with the surroundings.

a) Isothermal b) Adiabatic

c) Isobaric d) Isotropic

Q.7 Which law of thermodynamics was expressed by Nernst.

a) Third b) Second

c) First d) None

Q.8 Melting of wax is accompanied with_____ in entropy.

a) Increase b) Decrease

c) No change d) None

Q.9 Measurement of thermodynamic property of temperature is facilitated by _____ law of thermodynamics .

a) Third b) Second

c) First d) Zeroth

Q.10 Entropy of an ideal gas depends upon its_____.

a) Pressure b) Temperature

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

SECTION-B

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

Q.11 What is homogenous system?

Q.12 Mention any one intensive property of internal energy.

Q.13 Write one application of dalton's law.

Q.14 State first law of thermodynamics for closed system.

Q.15 Write one difference between adiabatic and polytropic process.

Q.16 What do you understand by heat of ideal gas undergoing reversible process?

Q.17 What is the general statement for second law of thermodynamics?

Q.18 What is thermodynamics temperature scale?

Q.19 Write one property of reorients .

Q.20 Name any one commonly used refrigants.

SECTION-C

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

Q.21 Differentiate open and isolated system.

Q.22 What is the concept of amagat's law?

Q.23 State the zeroth law of thermodynamics.

Q.24 Name the processes involved in homogenous and heterogeneous systems.

Q.25 Explain in detail the first law of thermodynamics for open system with example.

Q.26 How is joules experiment performed in lab? Explain the procedure.

Q.27 Derive the mathematical expression of Vanderwaal's equation of state.

Q.28 What are the limitations of first law of thermodynamics?