Q.27 Explain all the steps involved in Carnot cycle with Diagram.

Q.28 Write different statements of second law of thermodynamics

Q.29 Discuss Zeroth law of Thermodynamic

Q.30 Discuss heat pump and its COP.

Q.31 Explain the concept of adiabatic and isobaric.

Q.32 Explain in brief open, closed and isolated system with examples.

Q.33 Define third law of thermodynamics and state its application.

Q.34 Write a note on entropy change for reversible process

Q.35 Define equation of state and ideal gas law.

SECTION-D

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

Q.36 Write a short note on any two of the followings

a) Ideal gas equation

b) Elementary & non-elementary reaction

c) Heat Engine

Q.37 Define and explain the significance and limitation of any of first and second law of thermodynamics.

Q.38 Explain all operation of Carnot cycle with diagram.

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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 Which of the following is Extensive property

a) Mass b) Volume

c) Resistance d) All of the above

Q.2 Pascal is a unit of

a) Work b) Pressure

c) Energy d) Entropy

Q.3 Which of the following is not a path function

a) Heat b) Work

c) Internal energy d) None

Q.4 The first law of thermodynamics doesn't tell us whether a thermodynamic process is feasible or not

a) True b) False

Q.5 What is Thermodynamics?

a) study of the relationship between heat and other forms of energy

b) study of the conversion of chemical energy to other forms of energy

c) study of the relationship between mechanical energy to other forms of energy

d) study of the conversion of mechanical energy to other forms of energy

Q.6 Which of the following is a type of thermodynamic system?

a) Open system

b) Closed system

c) Thermally isolated system

d) All of the mentioned

Q.7 Unit of pressure

a) kpa b) Second

c) kj/s d) All

Q.8 Carnot cycle is a reversible cycle.

a) True b) False

Q.9 System cannot be exchange both matter and energy with the surroundings is called _____.

a) Open b) Closed

c) Isolated d) None

Q.10 An example of extensive properties is

a) surface tension b) refractive index

c) internal energy d) viscosity

SECTION-B

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

Q.11 State Dalton's law.

Q.12 Define process.

Q.13 Define refrigerants

Q.14 Write the formula of internal energy

Q.15 Define enthalpy.

Q.16 Write SI unit of enthalpy.

Q.17 Define surroundings.

Q.18 Give example of state function.

Q.19 Name two commonly used refrigerants.

Q.20 Expand COP.

SECTION-C

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

Q.21 Explain the significance of vanderwaal's equation.

Q.22 Discuss polytropic process in detail.

Q.23 State and explain Amagat's law and Henry's law

Q.24 Differentiate between elementary and elementary reaction.

Q.25 Explain vapour Compression refrigeration cycle

Q.26 Explain Reversible and Irreversible reaction with examples.