Q.24 State & explain Charle's law.
Q.25 What is an isentropic process?
Q.26 Explain the significance of entropy in thermodynamic system.
Q.27 Explain PPM of first kind.
Q.28 Write a short note on Vander Wall's equation.
Q.29 Explain the P-V-T surface of an ideal gas.
Q.30 Write five uses of steam.
Q.31 Describe mollier chart and explain its importance.
Q.32 Explain the working of throttling calorimeter.
Q.33 Write the advantages of multistage compression.
Q.34 Differentiate between reciprocating air compressor and rotary air compressor.
Q.35 Write and explain Fourier's law.

SECTION-D

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

Q.36 Derive an expression for work done, change in internal energy and rate of heat transfer for an isothermal process.
Q.37 Explain second law of Thermodynamic with the help of Kelvin Planck's and Classius statements.
Q.38 Draw heat labelled sketch of Babcock and Wilcox boiler and explain its working.

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2nd. Sem / Mech. Engg. (MSIL)
Subject:- Thermodynamics

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Heat does not spontaneously flow from a colder body to a hotter one. Which of the following thermodynamics law states this?
a) Zeroth law of thermodynamics
b) First law of thermodynamics
c) Second law of thermodynamics
d) Third law of thermodynamics

Q.2 Which of the following occurs without a change in the internal energy?
a) Isochoric process b) Isenthalpic process
c) Steady-state process d) Isenthalpic process

Q.3 What is the name of the graph that is drawn, when the temperature is kept constant?
a) Isotherm b) Isochoric and isobar
c) Isochoric d) Isobar

Q.4 What is the constant in ideal gas equation known as?
a) Universal gas constant
b) Pressure constant
c) Temperature constant
d) Boltzmann constant

Q.5 Isothermal process can be represented by which law?

a) Charle's law
b) Boyle's law
c) Gay-Lussac's law
d) 2nd law of thermodynamics

Q.6 Which of the following variables is zero for a cyclic process?

a) Work done
b) Heat supplied
c) Total heat + Total work
d) Total heat - Total work

Q.7 The second law of thermodynamics states that?

a) Entropy of an isolated system can never decrease over time
b) Entropy of a pure crystalline substance at 0K is 0
c) Energy is conserved
d) Entropy of a system can never decrease

Q.8 Average kinetic energy of a gas depends on which of the following factors?

a) Nature of gas b) Temperature
c) Pressure d) Volume

Q.9 The properties of water are arranged in the steam tables as functions of

a) pressure
b) temperature
c) pressure and temperature
d) none of the mentioned

Q.10 Which among the following are not the accurate selection criteria for air compressors?

a) Free air delivery b) Air receiver capacity
c) Power supply d) Speed

SECTION-B

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

Q.11 Define internal energy.
Q.12 State zeroth law of thermodynamics.
Q.13 Define universal gas constant.
Q.14 Define isochoric process.
Q.15 Describe hyperbolic process.
Q.16 Give statement of law of conservation of energy.
Q.17 Define heat capacity of an ideal gas.
Q.18 Define internal latent heat.
Q.19 Define swept volume of a compressor.
Q.20 Describe convection.

SECTION-C

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

Q.21 Differentiate between open system and closed system.
Q.22 What do you mean by thermodynamic property? Explain its types.
Q.23 Explain the difference between gas constant and universal gas constant.