Q.25 Explain free expansion process.
Q.26 Explain the role of triple point in study of general change of phase of a substance.
Q.27 Explain first law of thermodynamics.
Q.28 Define entropy and its importance.
Q.29 A tank containing air is stirred by a paddle wheel. The work input to paddle wheel is 8300 kJ and the heat transfer to surroundings from the tank is 2500kJ. Find change in internal energy of the system.
Q.30 Explain steam table.
Q.31 Enlist the various advantages of multistage air compressor.
Q.32 Explain the working of throttling calorimeter.
Q.33 Write five uses of steam.
Q.34 Explain the enthalpy of an ideal gas.
Q.35 Explain open and closed system with neat diagram.

SECTION-D

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

Q.36 Explain the working of Babcock & Wilcox Boiler with the help of a neat sketch.
Q.37 Drive the relation: $C_p = C_v = R$
Q.38 Explain construction and working of an axial flow compressor with the help of neat sketch.

Roll No. .....

2nd Sem. / Mech. Engg. (MSIL)

Subject : Thermodynamics

Time : 3 Hrs. M.M. : 100

SECTION-A

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

Q.1 Enthalpy is the heat supplied to a system at
a) Constant volume
b) Constant pressure
c) Constant temperature
d) Constant entropy

Q.2 When there is no transfer of mass and energy to and from the system, it is a type of
a) Closed system
b) Open system
c) Isolated system
d) Homogenous system

Q.3 The state of a substance whose evaporation from its liquid state is complete is called
a) Vapours b) Steam
c) Real gas d) Perfect gas

Q.4 The S.I. unit of characteristic gas constant is
a) J/kg b) J/k
c) J/Kg K d) kJ/kg

Q.5 In an isothermal process, internal energy
a) Increases
b) Decreases
c) Does not change
d) None of the above

Q.6 In throttling process
a) Q = 0
b) W = 0
c) Both (a) and (b)
d) None of the above

Q.7 The efficiency of perpetual motion machine of second kind is
a) 0% b) 50%
c) 75% d) 100%

Q.8 The change of entropy of water at O°C is assumed to be
a) 1 b) -1
c) 0 d) 10

Q.9 Which of the following is a water tube boiler?
a) Babcock and Wilcox boiler
b) Lancashire boiler
c) Cochran boiler
d) Locomotive boiler

Q.10 The pressure of air at the beginning of compression stroke is _____ atmospheric pressure.
(a) Less than (b) Equal to
(c) More than (d) None of these

SECTION-B

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

Q.11 Define Intensive property.

Q.12 Air compressor is an example of closed system. (True/False)

Q.13 The S.I. unit of specific heat is_____.

Q.14 Define hyperbolic process.

Q.15 State Boyle's Law.

Q.16 The volume of 1 kg mol of any gas at N.T.P. is _____

Q.17 Define heat source.

Q.18 Throtlling process is a reversible process. (True/False)

Q.19 Define priming of steam.

Q.20 Define Conduction.

SECTION-C

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

Q.21 Explain thermodynamic properties.

Q.22 Define Quasi Static Process.

Q.23 Differentiate between Water Tube Boiler & Fire Tube Boiler.

Q.24 Find the mass of a gas occupying $5.5m^3$ at 7 bar abs. and 200° C. Take gas constant R = 287J/kgK.