Q.27 Define steam table and its uses.

Q.28 Briefly explain the process of measuring the quality of steam using Separating calorimeter.

Q.29 Explain Kelvin Planck's statement.

Q.30 Explain Boiler Mountings & Accessories.

Q.31 Enlist the various uses of compressed air.

Q.32 Explain various methods of heat flow.

Q.33 Differentiate between Reciprocating and Rotary Compressors.

Q.34 Defube PMM1 and PMM2.

Q.35 A cyclic heat engine operates between a source temperature of 88° C and a sink temperature of 35°C. Find the rate of least heat rejection per kW net output of the engine.

SECTION-D

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

Q.36 Explain with the help of neat sketch the working of Lancashire boiler.

Q.37 A closed vessel contains 2kg of CO_2 at T_1=25° C and P_1=0.6 bar. Heat is supplied to the vessel till the gas acquires a pressure of P_2=1.5 bar. Find:

a) Final temperature of gas,

b) Heat absorbed. Take Cv = 0.66kj/kg K for CO_2.

Q.38 Explain the construction and working of centrifugal compressor with the help of neat sketch.

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Roll No. .....

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 The envelope which separates the thermodynamic system from surroundings is known as

a) Boundary b) Universe

c) State d) Process

Q.2 Bomb calorimeter is an example of

a) Closed system b) Open system

c) Isolated system d) Homogeneous system

Q.3 A gas which obeys all the gas laws under all conditions of temperature and pressure is called

a) Perfect gas b) Real gas

c) Natural gas d) All of these

Q.4 Constant pressure process is also known as

a) Isochoric process b) Isobaric process

c) Isothermal process d) Throttling process

Q.5 The entropy of water at O°C is assumed to be

a) 1 b) -1

c) 0 d) 0.1

Q.6 Second law of thermodynamic defines

a) Internal energy b) Entropy

c) Temperature d) heat

Q.7 The point at which all three phases- solid, liquid and vapour co-exist in equilibrium is called

a) Critical point

b) Triple point

c) Point of contra flexure

d) Ideal point

Q.8 Mollier diagram is a plot of

a) Temperature and entropy

b) Temperature and enthalpy

c) Entropy and pressure

d) Enthalpy and entropy

Q.9 Which one is the boiler mounting?

a) Economizer b) Air preheater

c) Pressure gauge d) Superheater

Q.10 The volume of air delivered by the compressor is called

a) Free air delivery b) Compressor capacity

c) Swept volume d) None of these

SECTION-B

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

Q.11 State Boyle's law.

Q.12 A perfect gas is also known as an ideal gas (True/False)

Q.13 Define an adiabatic process.

Q.14 Throttling process is a/an _____ process.

Q.15 Define entropy.

Q.16 State third law of thermodynamics.

Q.17 Define superheated steam.

Q.18 Latent heat of steam increases with increase in pressure (True/False)

Q.19 Name any two safety valves.

Q.20 Define Isochoric process

SECTION-C

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

Q.21 Explain thermodynamic process.

Q.22 Define Zeroth's law of thermodynamic.

Q.23 What is constant volume process ? Drive the expression for heat supplied in constant volume process.

Q.24 0.1 m^3 of air at pressure of 1.5 bar is expanded isothermally to 0.5 m^3. Calculate the final pressure of the gas and heat supplied during the process.

Q.25 Explain any two applications of general steady flow energy equation.

Q.26 Explain the role of triple point in study of general change of phase of a substance.