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3rd Sem / Mech, Prod, GE, CAD/CAM, CNC, Metallurgy, Print Making Tech., Mech (Ad. Manu. Tech.), Mech Engg (Fabrication Tech), AME

Subject:- Thermodynamics - I / Thermodynamics / Pr. of therm. Engg.

Time : 3Hrs. M.M. : 100

SECTION-A

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

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

Q.2 In an isothermal process, the internal energy
a) Increases b) Decreases
c) Does not change d) None of the above

Q.3 The efficiency of perpetual motion machine of second kind is equal to
a) 0% b) 50%
c) 75% d) 100%

Q.4 A hypothetical gas, which obey the law pv=Rt at all temperature and pressure is known as
a) Ideal gas b) Real gas
c) actual gas d) none of the above

Q.5 Vapor is a type of
a) Pure substance
b) Perfect gas
c) Mixed phase of liquid and gas
d) substance, homogeneous and invariable in chemical composition

Q.6 In a simple vertical boiler, Water tubes are
a) Horizontal b) Inclined
c) Vertical d) May be, a, b, or c

Q.7 Otto cycle is also known as
a) Constant pressure cycle
b) Constant volume cycle
c) Constant entropy cycle
d) Constant temperature cycle

Q.8 The volume of air which is delivered by the compressor is called
a) Free air delivery b) Compressor capacity
c) Swept volume d) None of the above

Q.9 A wet vapour can be completely specified by its:
a) Pressure
b) Temperature
c) Pressure and dryness fraction
d) Pressure and Temperature

Q.10 Which of the following is a boiler mounting
a) Pressure gauge b) Economizer
c) Superheater d) Air preheater

SECTION-B

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

Q.11 The SI unit of pressure is_____

Q.12 In throttling process, the Workdone is equal to=_____

Q.13 The reservoir, which is at higher temperature and supplies heat is known as_____

Q.14 A machine, which violates the first law of thermodynamic is called_____

Q.15 The point at which all the three phases-solid, liquid and vapour co-exist in equilibrium is called_____

Q.16 Steam is a _____ of water.

Q.17 Diesel cycle is also known as_____ cycle.

Q.18 Axial flow compressor is a type of_____ compressor.

Q.19 Blow off cock is fitted to_____ of the boiler drum.

Q.20 Define thermodynamics.

SECTION-C

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

Q.21 Compare water tube and fire tube boiler.

Q.22 Explain briefly, the process of formation of steam.

Q.23 Explain Otto cycle with the help of P-V diagram.

Q.24 Define Air compressor. Write the uses of compressed air.

Q.25 What is a thermodynamic property? What are its different types? Explain.

Q.26 Explain the free expansion process.

Q.27 Prove the Equivalency of Kelvin plank and Clausis statement.

Q.28 Drive general energy equation for a steady flow process.

Q.29 Write a short note on Reversible and irreversible processes

Q.30 Write the advantages of Superheater and superheated steam.

Q.31 Differentiate between reciprocating and rotary air compressor.

Q.32 Explain the following

a) Quasi-Static Process

b) Isolated system

Q.33 Classify the types of boiler.

Q.34 Explain uses of steam.

Q.35 Explain the construction and working of roots blower compressor with the help of neat sketch.

SECTION-D

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

Q.36 What is a constant pressure process? Drive an expression for the heat supplied during a constant pressure process.

Q.37 Explain the working of single stage reciprocating air compressor with the help of neat sketch.

Q.38 Explain the construction and working of Lancashire boiler with the help of neat sketch.