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3rd SEM / Mechanical

Subject : Thermodynamics-I

Time : 3 Hrs. M.M. : 100

SECTION-A

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

Q.1 Car battery is an example of
a) Closed system b) Open system
c) Adiabatic system d) isolated system (CO-1)

Q.2 Lancashire boiler is a
a) Water tube boiler b) Fire tube boiler
c) Vertical boiler d) None of these (CO-5)

Q.3 According to Charles law of perfect gas, the volume of given mass varies directly asit's
a) Pressure
b) Absolute Temperature, if pressure is kept constant
c) Absolute temperature, if volume is kept constant
d) None of these (CO-2)

Q.4 Constant pressure process is also known as
a) Isobaric process b) Isothermal process
c) Adiabatic process d) Isochoric process (CO-2)

Q.5 PMM-II is the machine which violates
a) Boyle's law b) Charles law
c) I law of thermodynamics
d) II law of thermodynamics (CO-2)

Q.6 The process in which vapour phase directly transferred into solid phase is
a) Evaporation b) Ablimation
c) sublimation d) Condensation (CO-3)

Q.7 Which of the following is boiler mounting?
a) Water level indicator
b) Air preheater
c) Economiser d) Superheater (CO-5)

Q.8 _____+Surroundings=_____
a) Cycle, Path b) Process, State
c) System, Universe d) None of these (CO-1)

Q.9 Diesel cycle is also know as
a) Constant pressure cycle
b) Constant temperature cycle
c) Constant volume cycle
d) Constant entropy cycle (CO-6)

Q.10 The point at which all three phases- soild, liquid, vapour co-exist in equilibrium is
a) Critical point b) Triple point
c) Ideal point
d) Point of contra flexure (CO-3)

SECTION-B

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

Q.11 Boundary of a system may be_____ or_____ (CO-1)

Q.12 Steam is the_____of water (CO-4)

Q.13 Define isothermal process. (CO-2)

Q.14 In Otto cycle heat is supplied at_____ (CO-3)

Q.15 First law of thermodynamics is based on_____ (CO-2)

Q.16 Define drysteam. (CO-4)

Q.17 Name any fire tube boilers. (CO-5)

Q.18 A perfect gas is also know as an ideal gas. (T/F) (CO-6)

Q.19 Define air compressor? (CO-6)

Q.20 Define internal energy. (CO-1)

SECTION-C

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

Q.21 Explain types of systems with suitable examples. (CO-1)

Q.22 Compare centrifugal compressor with axial flow compressor. (CO-6)

Q.23 Explain Joule's experiment with neat sketch. (CO-2)

Q.24 Differentiate between water tube and fire tube boilers. (CO-5)

Q.25 Explain perpetual motion machine of second kind (CO-2)

Q.26 Define heat source and heat sink. (CO-2)

Q.27 Briefly describe Vander-Wall's equation. (CO-3)

Q.28 Explain Zeroth law of thermodynamics with neat diagram. (CO-2)

Q.29 Derive an expression of work done for isochoric process. (CO-3)

Q.30 Briefly describe enthalpies of steam (CO-4)

Q.31 Explain centrifugal compressor briefly. (CO-6)

Q.32 Explain the boiler mountings and accessories briefly. (CO-5)

Q.33 Explain various uses of compressed air (CO-6)

Q.34 Explain Clausius statement of second law of thermodynamics. (CO-2)

Q.35 Explain the uses of steam. (CO-4)

SECTION-D

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

Q.36 Explain the construction, working of Lancashire boiler with neat diagram. (CO-5)

Q.37 Derive expression of work done, heat transfer and internal energy for isothermal process. (CO-2)

Q.38 Describe Otto cycle in detail. (CO-4)

(**Note:** Course outcome/CO is for office use only)