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

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 A system which consists of more than one phase is called (CO1)
a) open system
b) closed system
c) heterogeneous system
d) isolated system

Q.2 Everything external to the system is called (CO1)
a) Surroundings b) boundary
c) state d) None of these

Q.3 The S.I. unit of characteristic gas constant is (CO2)
a) J/kg b) J/kg K
c) kJ/kg d) J/K

Q.4 The entropy of water at 0^{o} C is assumed to be (CO4)
a) 0 b) 1
c) -1 d) None of these

Q.5 A hypothetical gas which obeys law PV=RT at all temperatures and pressures is called (CO2)
a) real gas b) ideal gas

c) actual gas d) None of these

Q.6 Vapour is a (CO4)
a) pure substance
b) perfect gas
c) mixed phase of liquid and gas
d) None of these

Q.7 Which of the following is water tube boiler (CO5)
a) Lancashire boiler
b) babcock and Wilcox boiler
c) locomotive boiler
d) Cochran boiler

Q.8 Otto cycle is known as (CO1)
a) constant pressure cycle
b) constant temperature cycle
c) constant volume cycle
d) None of these

Q.9 The volume of air delivered by the compressor (CO6)
a) compressor capacity b) free air delivery
c) swept volume d) All of these

Q.10 Constant volume process is also known as (CO2)
a) isobaric process b) throttling process
c) isothermal process d) isochoric process

SECTION-B

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

Q.11 Give two examples of open system. (CO1)

Q.12 Write two examples of intensive properties. (CO1)

Q.13 According to_____law, the absolute pressure of a given mass of perfect gas varies inversely to its volume, provided the temperature remains constant. (CO2)

Q.14 In adiabatic process, no_____ transfer takes place across the system boundary. (CO2)

Q.15 Give one examples of fire tube boiler. (CO5)

Q.16 The real gases don't obey the gas laws strictly. (True/False) (CO3)

Q.17 For dry steam, dryness fraction = _____. (CO4)

Q.18 Blow off cock is fitted to the_____ of the boiler of drum. (CO5)

Q.19 In diesel cycle, heat supplied at constant _____. (CO2)

Q.20 Axial flow compressor is a type of rotary compressor. (True/False) (CO6)

SECTION-C

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

Q.21 Define system, surroundings, boundary and state. (CO1)

Q.22 Write five mountings of boiler. (CO5)

Q.23 Explain zeroth law of thermodynamics. (CO1)

Q.24 Explain Charle's law. (CO2)

Q.25 Derive the expression for heat supplied in constant volume process. (CO2)

Q.26 Explain any two applications of general steady flow equation. (CO2)

Q.27 State kelvin plank statement and classius statement of second law of thermodynamics. (CO2)

Q.28 Write vanderwaal's equation. (CO3)

Q.29 Explain P-V-T surface of an ideal gas. (CO3)

Q.30 Define dry steam, wet steam and dryness fraction. (CO4)

Q.31 Write five uses of steam. (CO4)

Q.32 Write five differences between reciprocating air compressor and rotary air compressor. (CO6)

Q.33 Explain working of single stage reciprocating compressor. (CO6)

Q.34 Draw PV diagram of diesel cycle. (CO2)

Q.35 Compare otto cycle and diesel cycle for same compression ratio and same peak pressure. (CO2)

SECTION-D

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

Q.36 Explain Joule's experiment with neat sketch. (CO2)

Q.37 Write differences between fire tube boiler and water tube boiler. (CO5)

Q.38 Explain the process of formation of steam with neat sketch. (CO4)

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