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171743/30434

4th Sem. / Mechanical

Subject : Thermodynamics-I

Time : 3 Hrs. M.M. : 100

SECTION-A

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

(Course Outcome/CO)

Q.1 In a closed system, there is no transfer of _____ across the system boundary. (CO-1)

Q.2 The S.I unit of heat is _____ (CO-1)

Q.3 Constant temperature process is also know as _____ process (CO-2)

Q.4 A perfect gas obeys _____ under all conditions of temperature and pressure.(CO-3)

Q.5 In adiabatic process, no _____ transfer takes place across the system boundary.(CO-4)

Q.6 In _____ boilers, water is contained inside the tubes which are surrounded by flame and hot gases. (CO-5)

Q.7 Efficiency of otto cycle is = (CO-5)

Q.8 Axial flow compressor is a type of _____ compressor (CO-5)

Q.9 In the throttling process, work done = (CO-6)

Q.10 According to Boyle's Law PV= (CO-2)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts out of twelve questions. (10x2=20)

Q.11 Define Avogadro's law (CO-1)

Q.12 Define throttling process (CO-1)

Q.13 Define ideal gas. (CO-1)

Q.14 Name any two types of boiler mounting.(CO-2)

Q.15 Define fire tube boilers. (CO-3)

Q.16 Define air standard efficiency (CO-4)

Q.17 Define an air compressor. (CO-4)

Q.18 Define dryness fraction. (CO-4)

Q.19 Define superheated steam. (CO-6)

Q.20 State Kelvin-Planck statement of second law thermodynamics. (CO-2)

Q.21 Define perpetual motion machine of second kind. (CO-2)

Q.22 Define thermodynamics equilibrium. (CO-5)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x5=40)

Q.23 Explain reversible and irreversible process briefly. (CO-1)

Q.24 Explain constant pressure process with the help of P-V diagram. (CO-2)

Q.25 Drive general energy equation for a steady flow process. (CO-2)

Q.26 Write any five difference between water and fire tube boilers. (CO-3)

Q.27 Explain an otto cycle. Also drive expression for its efficiency. (CO-4)

Q.28 Explain the working of single stage reciprocating air compressor with the help of neat sketch. (CO-5)

Q.29 Drive the relationship between specific heat Cp and Cv (CO-3)

Q.30 Explain briefly closed system and open system. (CO-6)

Q.31 Give any five difference between reciprocating and rotary air compressors. (CO-6)

Q.32 Define thermodynamics property, Explain its types briefly. (CO-2)

SECTION-D

Note: Long answer type questions. Attempt any three questions out of four questions. (3x10=30)

Q.33 Explain the construction and working of Nestler boiler with the help of neat sketch. (CO-4)

Q.34 Enlist the boiler accessories. Explain any two accessories with diagram. (CO-6)

Q.35 Explain fist law of thermodynamics with the help of Joule's experiment. (CO-2)

Q.36 Explain the process of formation of steam with help of neat diagram between temperature and heat supplied. (CO-1)

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