(1) Clausius Statement It is impossible to construct a device that operates in a cycle and produces no effect other than the transfer of heat from a lower-temperature body to a higher-temperature body.

(2) Kelvin Statement It is impossible for any device that operates on a cycle to receive heat from a single reservoir and produce a net amount of work without any change.

(3) Reversible Cycle The cycle which consists entirely of reversible processes

(4) Irreversible Cycle The cycle which consists of irreversible processes

(5) Entropy transfer The Clausius integral of any process

(6) Ideal Gas for any gas whose equation of state is given exactlyby $pv = RT$, the specific internal energy depends on temperature only $(u=u(t))$.

(7) Specific Heat the heat required to raise the temperature of a unit quantity of a substance by one degree.

(8) Quality the ratio of the mass of vapor to the total mass of the mixture

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(9) Saturated Air the mixture of dry air and saturated vapor

(10) Unsaturated Air the mixture of dry air and superheated vapor

(11) Dew-point Temperature saturation temperature corresponding to the partial pressure of vapor in the air.

(12) Relative Humidity the ratio of partial pressure of water vapor in the air to the saturation pressure corresponding to air temperature

(13) Mach Number the ratio of the actual velocity of the fluid to the speed of sound in the same fluid at the same state.

(14) Critical pressure ratio the ratio of critical pressure to the pressure at inlet

$$Re = \frac{wl}{}$$

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(15) Reynolds Number ratio of inertia forces to viscous forces $\mathrm{Re} = \frac{wl}{v}$

(16) Prandtl Number ratio of viscosity to thermal diffusivity $\mathrm{Pr} = \frac{v}{a}$

(17) Critical Heat Flux the heat flux at state that nucleate boiling is completely replaced by film boiling

(18) View Factor the fraction of the radiation leaving surface 1 that strikes surface 2 directly, denoted by $X_{1,2}$

(19) Emissive Power the total radiation energy emitted over a wavelengthband from $\lambda=0$ to $\lambda=\infty$ per unit time and per unit surface area

(20) Emissivity the ratio of the body emissive power to the blackbody emissive power at the same

(21) Critical Radius of Insulation when $d_x = \frac{2\lambda_2}{\alpha_2}$, thermal resistance is the smallest, and heat transfer per unit length reaches a maximum. d_x is called "critical diameter of insulation"

(22) Humidity Ratio the ratio of the mass of water vapor in the air to the mass of dry air

(23) Entropy Generationdifference between entropy change and entropy transfer

the vapor whose temperature is higher than the