

1. In a steam power plant

- (a) superheating can be done in the Carnot Cycle
- (b) superheating can be done in the Rankine Cycle
- (c) both the Carnot and Rankine Cycle must operate with dry, saturated steam
- (d) none of these

2. The state of steam at the outlet of the condenser in the Rankine Cycle has a dryness fraction of

- (a) 1
- (b) 0.5
- (c) any value between 0 and 1
- (d) zero

3. The Carnot vapor Cycle is impracticable as the

- (a) steam turbine work is irreversible
- (b) isothermal heat addition is impracticable
- (c) isothermal heat rejection is impracticable
- (d) both (b) and (c) are true

4. The compressor in the Carnot Cycle has to be large as it has to handle a

- (a) dry saturated steam
- (b) dry saturated liquid
- (c) liquid + vapor system
- (d) high temperature

5. In ideal Rankine cycle, the steam enters the condenser as a

- (a) saturated vapor
- (b) saturated liquid
- (c) saturated liquid – vapor mixture
- (d) superheated steam

6. In the ideal Rankine cycle, the steam that enters the condenser leaves as a

- (a) liquid-vapor mixture
- (b) saturated liquid
- (c) sub-cooled liquid

(d) liquid containing some amount of dissolved steam

7. In the mercury-steam binary cycle the

(a) mercury cycle is superimposed on the steam cycle

(b) steam cycle is superimposed on the mercury cycle

(c) two cycles work independently with no heat interaction

(d) none of the above

8. The mercury-steam binary cycle has

(a) a high overall plant efficiency

(b) a high degree of availability

(c) simplicity in operation

(d) all are true

9. A simple gas turbine operates in a

(a) Stirling cycle

(b) Rankine cycle

(c) Brayton cycle

(d) Carnot cycle

10. The Otto cycle comprises

(a) two constant volume and two isentropic processes

(b) two constant pressure and two isentropic processes

(c) two isothermal and two adiabatic processes

(d) two constant pressure and two constant volume processes

11. When acetylene is used as a fuel, the oxidizer

(a) liquid oxygen

(b) gaseous oxygen

(c) air

(d) sodium peroxide

12. Gasohol is

(a) gasoline+LPG blend

(b) CNG+LPG+gasoline

(c) LNG+gasoline

(d) gasoline+10% ethanol

13. Gasoline is

(a) octane,  $C_8H_{18}$

(b) iso-octane,  $C_8H_{18}$

(c) dodecane,  $C_{12}H_{26}$

(d) none of the above

14. Carnot cycle consist of

(a) 2 reversible isobaric and 2 adiabatic processes

(b) 2 reversible isochoric and 2 adiabatic processes

(c) 2 reversible isothermal and 2 adiabatic processes

(d) none of these

15. Rankine Cycle is a modification of

(a) otto cycle

(b) diesel cycle

(c) carnot cycle

(d) none of these

16. In ideal otto cycle, \_\_\_\_\_ is assumed to be the working medium.

(a) saturated gas

(b) perfect gas

(c) steam

(d) none of these

17. Among all heat engines cycles, Carnot Cycle

(a) has the lowest thermal efficiency

(b) has the highest thermal efficiency

(c) has the thermal efficiency greater than that of Rankine Cycle

(d) none of these

18. If  $T_1$  = maximum absolute temperature of the cycle

$T_2$  = minimum absolute temperature of the cycle, then thermal efficiency of Carnot Cycle will be

(a)(b)(c)(d)

19. In Carnot cycle with vapour

- (a) the working medium is steam
- (b) the working medium may be any other vapour
- (c) both (a) and (b)
- (d) none of these

20. In Carnot Cycle with vapour

- (a) only dry saturated steam is used
- (b) only wet saturated steam is used
- (c) only superheated steam is used
- (d) either dry or wet saturated steam may be used

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