TE - II

1. In a two stroke engine, the working cycle is completed in ___ no of revolution of the crankshaft.

a) 1 b) 2 c) 3 d) 4

2. In a four stroke engine, the working cycle is completed in ___ no. of revolution of the crankshaft.

a) 1 b) 2 c) 3 d) 4

3. At same engine speed, no of power strokes of two stroke cycle engine as compared to four stroke cycle engine is ___.

a) half b) double c) equal d) four times

4. $(\eta_{th})_{2\text{-stroke}}$ is ___ $(\eta_{th})_{4\text{-stroke}}$.

a) Less than b) Equal to c) Greater than d) can't say

5. Compression ratio of a petrol engine ranges from

a) 6 to 12 b) 12 to 16 c) 16 to 22 d) 22 to 28

6. Compression ratio of a diesel engine ranges from

a) 6 to 12 b) 12 to 16 c) 16 to 22 d) 22 to 28

7. Compression ratio of dual cycle engine ranges from

a) 6 to 12 b) 12 to 16 c) 16 to 22 d) 22 to 28

8. On which thermodynamic cycle diesel engine works. ?

a) Otto cycle b) Diesel cycle c) Joule cycle d) Stirling cycle

9. On which thermodynamic cycle petrol engine works ?

a) Otto b) Diesel c) Rankine d) stirling

10. What should be the value of process ratio ?

a) < 1 b) > 1 c) $= 1$ d) ≤ 1

11. What is the relation between compression ratio (r_c) and clearance ratio ?

a) $r_c = 1 + \frac{1}{C}$ b) $r_c = 1 - \frac{1}{C}$ c) $C = 1 + \frac{1}{r_c}$ d) $C = 1 - \frac{1}{r_c}$

12. The knocking tendency in S.I. engines may be decreased by

a) Controlling the AFM
b) Reducing compression ratio
c) Controlling ignition timing
d) Increasing compression ratio

13. A carburettor is used to supply

a) Petrol and air
b) Diesel and air
c) Petrol, air, lubricating oil
d) Diesel, air and lubricating oil

14. Which of the following is related to C.I. engine ?

a) ~~Ign~~ Spark plug b) Fuel injector c) Carburettor d) All of the above

15. Volume of air sucked by compressor is called

a) Compressor capacity
b) Free air delivery
c) Swept volume
d) None of the above

16. Volume of air delivered by compressor is known as

a) Compressor capacity
b) Free air delivery
c) Swept volume
d) None of the above

17. Reason of intercooling in multi-stage compressor is

a) To cool the air at delivery
b) To cool the air during compression
c) Minimize the compression work
d) Maximize the compression work

18. Ratio of work done/cycle to the swept volume of the compressor is

a) Mean effective pressure
b) Compressor capacity
c) Compressor efficiency
d) Compression ratio

19. The ratio of cylinder diameters for a single acting, two stage reciprocating air compressor with complete intercooling, is

a) $D_1/D_2 = \sqrt{P_1/P_2}$
b) $D_1/D_2 = \sqrt{P_2/P_1}$
c) $D_1/D_2 = \sqrt{P_1 P_2}$
d) None of the above

20. For a two stage reciprocating air compressor, intercooler pressure (P_2) for minimum work required

a) $P_2 = P_1/P_3$ b) $P_2 = P_1 P_3$ c) $P_2 = \sqrt{P_1 P_3}$ d) $P_2 = P_3/P_1$

where P_1 = Intake pressure of air, P_3 = Delivery pressure of air

21. The saturated liquid line and saturated vapour line meets at

a) Triple point b) Critical point c) Ice point d) Boiling point

22. At critical point, enthalpy of vapourization is

a) Zero b) negative c) Positive d) can't say

23. Latent heat of steam at atmospheric condition is

a) 1935 kJ/kg b) 2257 kJ/kg c) 2585 kJ/kg d) 2763 kJ/kg

24. Critical temperature and critical pressure of the steam is respectively

a) 647.15 K and 221.2 bar b) 547.15 K and 221.2 bar

b) 494.2 K and 374.15 bar d) 594.2 K and 374.15 bar

25. With increase in pressure enthalpy of vapourisation

a) decreases b) increases c) remains constant d) can't say

26. With increase in pressure, boiling point of water

a) decreases b) increases c) remains constant d) can't say

27. The value of dryness fraction ranges between

a) 0 to 1 b) 0 to 2 c) 1 to 2 d) -1 to 1

28. The behaviour of specific volume of water when heated from 273 K

a) steadily increases c) First increases and then decreases

b) steadily decreases d) First decreases and then increases

29. With increase in pressure, the enthalpy of dry saturated steam

a) increases b) decreases c) remains constant d) can't say

30. The amount of heat required to evaporate any fluid from its saturation temperature, without changing temperature, is known as

a) Entropy of steam
b) Enthalpy of steam
c) Sensible heat of vaporisation
d) Latent heat of vaporisation

31. Entropy of a dry steam (s_g) is given by

a) $s_f + \frac{h_{fg}}{T}$ b) $s_f + \frac{T}{h_{fg}}$ c) $s_f - \frac{T}{h_{fg}}$ d) $s_f - \frac{h_{fg}}{T}$

32. Representation of isentropic process in Mollier diagram by

a) Vertical line b) Horizontal line c) Inclined d) Curve

33. On the h-s diagram, throttling process is

a) Vertical line b) Horizontal line c) Inclined d) Curve.

34. In a constant volume process, heat transferred is equal to

a) Change in entropy
b) Change in enthalpy
c) Work done
d) Change in internal energy

35. Which boiler is best suited for fluctuated demand of steam ?

a) Lancashire
b) Locomotive
c) Babcock
d) Cochran

36. Fire tube boilers produce steam at a _____ pressure than that of water tube boilers.

a) Lower b) Higher

37. The diameter of internal flue tubes of a Lancashire boiler is around _____ of its shell.

a) 1/2 b) 1/3 c) 2/3 d) 3/5

38. What is the effect of economiser in steam raising capacity ?

a) Increases b) Decreases c) No effect d) Can't say

39. _____ is attached for preventing explosions due to excessive internal pressure of steam is called

a) Water level indicator
b) Pressure gauge
c) Safety valve
d) Fusible plug

40. Function of air preheater is

a) Increase efficiency of boiler b) Enables low grade fuel to be burnt

c) Increase evaporative capacity d) All of these

41. Which device is used to put off fire in the furnace of the boiler when the level of the water in the boiler falls to an unsafe limit ?

a) Fusible plug b) Blow off cock c) Economiser d) Preheater

42. Which of the followings are boiler mountings ?

1. Safety valve 2. Pressure gauge 3. Superheater 4. Economiser
5. Preheater 6. Fusible plug 7. Feed check valve

a) 1, 2, 3, 4, 5 b) 1, 2, 6, 7 c) 3, 4, 5, 6, 7 d) All

43. A device used to increase temperature of saturated steam without increasing pressure is

a) Superheater b) Economiser c) Blow off cock d) Stop valve

44. Which type of safety valve is used in locomotive and marine boiler is

a) Spring loaded b) Dead weight c) Lever d) High pressure and low water

45. All radiations in a black body are

a) Reflected b) Absorbed c) Refracted d) Transmitted

46. The heat is transferred by conduction, convection and radiation in

a) Boiler furnaces b) Melting of ice

c) Condensation of steam in condenser d) None of these

47. The radiation emitted by a black body is known as

a) Black radiation b) Total radiation c) Full radiation d) All of these

48. The emissive power of a body depends upon its

a) Wavelength b) Temperature

c) Physical Nature d) All of these

49. The amount of radiation mainly depends upon the

a) Nature of the body
b) Type of surface of the body
c) Temperature of the body
d) All of the above

50. Thermal diffusivity is a

a) Physical property of a substance
b) Dimensionless parameter
c) Function of temperature
d) All of the above