

Important questions on thermal engineering-II

2 marks questions

1. What is engine?
2. Name the types of engines based on combustion.
3. Classify engine on the basis of stroke.
4. Define stroke.
5. What are the advantages of using 2 stroke instead of 4 stroke engine?
6. What are the processes that occurs inside the I.C engine?
7. What do you mean by compression ratio?
8. How can you find the indicated power of an engine?
9. What is specific piston speed?
10. What is over square ratio?
11. Define volumetric efficiency.
12. What is specific fuel consumption?
13. Write down two uses of compressed air.
14. Write atmospheric pressure in at least two units.
15. Classify air compressor on the basis of operating principle.
16. What are the advantages of using multistage compression instead of single stage?
17. Differentiate between booster and blower.
18. Classify Dynamic air compressor.
19. Write down the expression of work done for single stage reciprocating compressor.
20. Differentiate between reciprocating air compressor and dynamic air compressor.
21. What do you mean by volumetric efficiency in relation to compressor? (Student are advised to write both definitions if not mentioned)
22. Define Isothermal efficiency.
23. What is intercooling?
24. If starting and ending pressures of multistage compressor are 3 and 27 bar, what will be the intermediate pressure?
25. Write down the factors upon which volumetric efficiency of compressor depends?
26. What is critical temperature and pressure?
27. Differentiate between wet steam and dry steam.
28. Differentiate between sensible heat and latent heat?
29. What do you mean by superheated steam?
30. Differentiate between gas and Vapour.
31. What do you mean by dryness fraction.?
32. Define radiation.
33. State Fourier's law of heat conduction.
34. What do you mean by black body?
35. What is irradiation?
36. Define reflectivity.
37. Find the Carnot efficiency of cycle operating between 25⁰c and 125⁰c.
38. Represent Rankine cycle in H-S plot.
39. What are the different methods to increase the efficiency of Rankine cycle?
40. Define boiler.
41. Write two examples of fire tube boiler.
42. What do you by grate?

43. What do you mean by lagging?
44. Classify boiler drought.
45. State Stefan's law.

5 Marks Questions

1. Explain the working principle of I.C engine.
2. Derive the relationship between brake thermal efficiency, mechanical efficiency, and indicated thermal efficiency.
3. What is air-fuel ratio? What is the significance of air fuel ratio?
4. Classify air compressor on different parameters.
5. Explain working principle of single stage air compressor.
6. Explain working principle of multistage air compressor.
7. Derive expression of volumetric efficiency.
8. Compare single and multistage compression.
9. Differentiate between gas and Vapour.
10. Explain the different phase change terms associated with steam formation.
11. How can you find the total internal energy of superheated steam?
12. Explain different modes of heat transfer?
13. What is thermal conductivity? Write its characteristics and units.
14. What is thermal resistance? Explain the electrical analogy.
15. What do you mean by heat transfer coefficient? Write its dependence.
16. Explain white body, gray body, black body and colored body.
17. Explain reflectivity, transmissibility, absorptivity.
18. Derive Rankine efficiency.
19. Compare Rankine and Carnot cycle.
20. Explain various types of steam generators.
21. Differentiate between boiler accessories and boiler mountings.

7 marks questions

1. Explain the different performance parameters of I.C engine.
2. Derive the expression of work done for single stage reciprocating compressor.
3. Derive the expression of the work done for multi stage compressor.
4. Derive the condition in which the work done of multi stage will be minimum.
5. State different laws associated with heat transfer.
6. Explain the process of formation of steam.
7. Explain the various terms associated with blackbody radiation.
8. Explain Rankine cycle. Derive its efficiency. Write down its limitations.
9. What are the improvements that can be done to increase the efficiency of Rankine cycle?
10. Explain the working of Cochran boiler.
11. Explain the working of Lanchashire Boiler.
12. How a Babcock and Wilcox boiler works?
13. Explain the working principle of multistage compressor.
14. What do you mean by boiler drought? Explain in detail.

