

B.E / B.Tech. PRACTICAL END SEMESTER EXAMINATIONS, APRIL/MAY 2023

Fourth Semester

ME3461- THERMAL ENGINEERING LABORATORY

(Regulations 2021)

Time : 3 Hours

Answer any one Question

Max. Marks 100

Aim/Principle/Apparatus required/Procedure	Tabulation/Circuit/Program/Drawing	Calculation & Results	Viva-Voce	Record	Total
20	30	30	10	10	100

1. Determine the valve timing and port timing diagram for a 4-stroke diesel engine and observe the different readings of opening and closing of ports **(100 Marks)**
2. Conduct an experiment to draw the actual P-V diagram for a 4- stroke diesel engine **(100 Marks)**
3. Determine the performance characteristics of a 4-stroke diesel engine at 20%, 40%, 60% & 80% of different loads using Mechanical Loading and draw the performance curves **(100 Marks)**
4. Determine the heat balance sheet calculations at 0%, 20%, 40%, 60% & 80% of different loads in minutes basis for 4-stroke diesel engine **(100 Marks)**
5. Plot the curves of BP vs TFC,SFC,A/F and mechanical efficiency for multi cylinder petrol engine by Morse test and also calculate the frictional power **(100 Marks)**
6. Plot the curves of BP vs TFC,SFC,A/F and mechanical efficiency for diesel engine by retardation test and also calculate the frictional power **(100 Marks)**
7. Conduct an experiment to draw the actual P- Θ diagram and determine the heat release characteristics of IC engine**(100 Marks)**
8. Determine the flash point and fire point of given fuel/lubricant by using BITUMEN closed cup /open cup apparatus**(100 Marks)**
9. Determine the performance characteristics of a Two – stage reciprocating air compressor and andcalculate its volumetric efficiency and overall efficiency. Draw the performance curves of a compressor. **(100 Marks)**

10. Calculate the co-efficient of performance of vapour compression refrigeration system and determine the refrigeration effect, actual COP and theoretical COP of the system. **(100 Marks)**
11. Study about the different types of steam generator and steam turbines. **(100 Marks)**
12. Determine the performance characteristics and energy balance test on steam generator and draw the necessary curves. **(100 Marks)**
13. Determine the performance characteristics and energy balance test on steam turbine and draw the necessary curves. **(100 Marks)**
14. Determine the performance characteristics on a fluidized bed cooling tower unit and find out the overall efficiency of cooling tower **(100 Marks)**
15. Determine the performance characteristics on HC refrigeration rig and calculate the C.O.P refrigeration efficiency. **(100 Marks)**
16. Conducting the performance test on steam boiler and write the relevant equations to determine performance parameters. **(100 Marks)**
17. Conducting the performance test on steam turbine and write the relevant equations to determine performance parameters. **(100 Marks)**
18. Study the working of Impulse and Reaction steam turbines in detail **(100 Marks)**
19. Study the working principle of steam generator **(100 Marks)**