

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

Fourth Semester

**ME3461- THERMAL ENGINEERING LABORATORY**

(Regulations2021)

Time : 3 Hours

Answer any one Question

Max. Marks 100

| <b>Aim/Principle/Apparatus required/Procedure</b> | <b>Tabulation/Circuit/ Program/Drawing</b> | <b>Calculation &amp; Results</b> | <b>Viva-Voce</b> | <b>Record</b> | <b>Total</b> |
|---|--|----------------------------------|------------------|---------------|--------------|
| <b>20</b>   | <b>30</b>                                  | <b>30</b>                        | <b>10</b>        | <b>10</b>     | <b>100</b>   |

1. Draw the valve timing diagram for 4 stroke petrol engine showing the relative crank angles corresponding to opening and closing of inlet and exhaust valves. **(100 Marks)**
2. Conduct a performance test on the given single cylinder 4 stroke diesel engine and to draw the following: a) Brake power vs specific fuel consumption. B) Brake power vs mechanical efficiency, **(100 Marks)**
3. Conduct a heat balance test on 4 stroke diesel engine and to draw up a heat balance sheet showing the proportion of useful work and various losses. **(100 Marks)**
4. Conduct a morse test on a multi cylinder engine coupled with hydraulic dynamometer and to find the frictional power. **(100 Marks)**
5. To study the actual P-V diagrams of 4 stroke C.I. engine and S.I engine. **(100 Marks)**
6. To study the actual P-V diagram of 2 stroke C.I engine and S.I engine. **(100 Marks)**
7. Conduct the retardation test on the given single cylinder 4 stroke diesel engine and to draw the graph between the drop in speed and the time taken. **(100 Marks)**
8. Determine the viscosity of the given oil at various temperature and study the variation of viscosity with temperature. **(100 Marks)**
9. To measure the flash and fire points of the given oil using pensky-morten apparatus/open cup apparatus. **(100 Marks)**

10. Conduct a test on an oil fired steam generator and 1. Calculate the boiler thermal efficiency, 2. To draw the heat balance test. **(100 Marks)**
11. Conduct a test on the impulse steam turbine and to draw the performance curves and draw heat balance sheet. **(100 Marks)**
12. Conduct a retardation test and determine the friction power of the single cylinder diesel engine at a given speed 850 rpm. **(100 Marks)**
13. Conduct a morse test on four-cylinder four stroke petrol engine. **(100 Marks)**
14. Conduct a load test on a 4-stroke single cylinder petrol engine and study its performance under various loads. **(100 Marks)**
15. Conduct a load test on a 4-stroke single cylinder diesel engine with mechanical rope brake loading. **(100 Marks)**
16. Study the performance characteristics on a fluidized bed cooling tower with neat sketch. **(100 Marks)**
17. To calculate the C.O.P (Coefficient of Performance) refrigeration efficiency with graph. **(100 Marks)**
18. To calculate a heat balance test on a Double cylinder 2 stroke diesel engine using different loads at constant speed. **(100 Marks)**
19. To calculate overall efficiency and volumetric efficiency of a single-stage reciprocating air compressor by performance test. **(100 Marks)**
20. Difference between Carnot COP and Experimental COP. **(100 marks).**