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# SRI CHANDRASEKHARENDRA SARASWATHI

## VISWA MAHA VIDYALAYA

(University u/s 3 of the UGC Act 1956)

(Accredited with "B" Grade by NAAC)

ENATHUR, KANCHIPURAM- 631 561. Tamilnadu, India.

## DEPARTMENT OF MECHANICAL ENGINEERING



## "MANUAL FOR THERMAL ENGINEERING LABORATORY"

(Academi Year 2015-2016)

Name : \_\_\_\_\_

Register No. : \_\_\_\_\_ Sec : \_\_\_\_\_

Year : \_\_\_\_\_

Semester : \_\_\_\_\_

## THERMAL ENGINEERING LABORATORY

### LIST OF EXPERIMENTS

1. Performance test on single stage reciprocating air compressor
2. Performance test on constant speed centrifugal air blower
3. Valve timing diagram on four stroke petrol engine
4. Port timing diagram on two stroke petrol engine
5. Load test on single cylinder petrol engine with mechanical loading
6. Load test on single cylinder diesel engine with mechanical loading
7. Performance test on high speed diesel engine with alternator loading
8. Performance test on slow speed – diesel engine
9. Performance test on High Speed – Twin Cylinder Diesel Engine
10. Noise and Smoke measurement of Computerized Diesel Engine.
11. Testing of Fuels and lubricants using Saybolt Apparatus
12. Testing of Fuels and lubricants using Redwood Apparatus
13. Flash and Fire point of Fuels and Lubricating Oil
14. Performance of flat plate solar collector
15. Performance of flat plate solar collector (PV Module)

**THERMAL LABORATORY  
DEPARTMENT OF MECHANICAL ENGINEERING  
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**OBSERVATION:**

Orifice Diameter: .....

Energy meter constant.....

S No	Delivery Pressure kg/cm <sup>2</sup>	Manometer readings in cm of water			Time taken for 5 rev in sec	Speed in rpm	V <sub>a</sub> in m <sup>3</sup> /sec	V <sub>t</sub> in m <sup>3</sup> /sec	Compressor input in kW	Compressor output in kW	Isothermal efficiency in %	Volumetric efficiency in %
		h <sub>1</sub>	h <sub>2</sub>	h <sub>1</sub> - h <sub>2</sub>								

**EX NO: PERFORMANCE TEST ON SINGLE STAGE AIR  
DATE: COMPRESSOR**

**OBJECTIVES:**

To conduct a performance test on a single stage reciprocating air compressor and determine its volumetric & isothermal efficiency.

**SPECIFICATION:**

TYPE :  
SPEED :  
TYPE OF COOLING :  
CYLINDER BORE :  
STROKE :  
MAX. PRESSURE :

**PRECAUTIONS:**

1. Before starting the experiment the air, which is already compressed if any in the reservoir, is released out so that initial gauge pressure in compressor reservoir is zero.
2. The initial load on the motor while starting should be avoided by opening the valve provided at the storage tank.

**PROCEDURE:**

1. The motor is switched on by pressing the green color button. Water drain cock and the air outlet valves are closed after speed of the motor has increased to the rated speed. The increase in pressure of air in the tank is indicated by the pressure gauge.
2. The pressure of air is maintained constant to the desired value (say 2 kg/sq.cm) by adjusting the opening of the compressed air outlet valve. (by trail and error method)
3. The following observations are to be made by keeping pressure constant.
  - a. Speed
  - b. Manometer Reading

