

S.B. Roll. No.....

THERMODYNAMICS-I
4th Exam/Mech./5253/Jun'2022
(For 2018 Batch Onwards)

Duration: 3Hrs.

M.Marks:75

SECTION-A

Q1. Do as directed.

15x1=15

- a. Solids are heated by Conduction.
- b. Heat and Work are mutually_____
- c. Free expansion is a _____Process.
- d. Locomotive boiler is a _____tube boiler.
- e. Otto cycle is also known as _____
- f. The efficiency of Carnot cycle is maximum.
- g. An _____Is a device which compresses the air and raises its temperature?
- h. The Mollier diagram is a plot of enthalpy and entropy.
- i. Dryness fraction of dry steam is _____
- j. For adiabatic process heat is _____
- k. Entropy of the universe remains constant.
- l. Work is a point function.
- m. Intensive property is independent upon mass.
- n. The units of Thermal conductivity is _____
- o. The value of C_v for a gas is always less than C_p .

SECTION-B

Q2. Attempt any six questions.

6x5=30

- i. Define thermodynamic system. Explain their types briefly.
- ii. State Charle's law.
- iii. Define Isothermal process. Give its relation for heat and work.
- iv. Derive ideal gas equation.
- v. State first law of thermodynamics.
- vi. What do you mean by Mollier diagram?
- vii. Define Fourier's law.
- viii. State Zeroth law of thermodynamics.
- ix. State the function of boiler mountings.

SECTION-C

Q3. Attempt any two questions.

2x15=30

- a. Explain joule's experiment for first law of thermodynamics.
- b. State and explain Kelvin Planck statement and Clausius statement for 2nd law of thermodynamics.
- c. Explain with neat sketch working of Babcock and Wilcox boiler.
- d. i) List the use of compressed air in human life. ii) Define Entropy and give its formula.
 iii) Define Conduction and convection.