

Navrachana University
School of Engineering & Technology
End-Semester Examination May 2023
Program Name – MECHANICAL ENGINEERING
Year and Semester: 1ST YR, 2ND Sem
ME 102 THERMODYNAMICS

Date: 16/05/2023
Time: 2pm – 4pm

Max. Marks: 40

Instructions:

- Write each answer on a new page
- Use of calculator is permitted/not permitted

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|-----------|---|-------------|---------------------|
| Q1 | State the zeroth law, first law and second law of thermodynamics and their significance. | (06) | CO1,
CO2 |
| OR | | | |
| Q2 | What do you mean by thermodynamic equilibrium explain with examples?
Discuss the Kelvin plank and Clausius statements. Prove that violating one statement will Lead to violation of the other statement. | (06) | CO1,
CO2,
CO3 |
| Q3 | Derive steady flow energy equation. | (08) | CO1,
CO2,
CO3 |
| Q4 | Explain the Carnot cycle with T-s Diagram and derive and expression for COP. | (08) | CO1,
CO2,
CO3 |
| Q5 | Draw neat sketch and derive the equations for followings devices (Any-3)
(a) Compressor
(b) Throttling
(c) Turbine
(d) Heat Exchanger | (12) | CO1,
CO2,
CO3 |

-----End of Question Paper-----