

Roll No.

3060

B. Tech. 3rd Semester (ME)
Examination – December, 2022

THERMODYNAMICS

Paper : PCC-ME-213-G

Time : Three Hours] [Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting one question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (i) Define thermal equilibrium.
- (ii) Define thermodynamic definition of work with examples.
- (iii) Define thermal efficiency.
- (iv) Define Carnot cycle.
- (v) Define Irreversibility and availability.
- (vi) Define rampine cycle. $2.5 \times 6 = 15$

UNIT – I

2. Explain heat in details also explain work/heat interaction in systems and first law of thermodynamics. 15
3. Explain the following : 15
- (i) Modes of energy
 - (ii) Internal energy and enthalpy

UNIT – II

4. Define pure substance and ideal gases also explain P-V and T-S diagram for pure substance. 15
5. Explain various types of steams in details also explain compressibility charts and Mollier's chart. 15

UNIT – III

6. Explain the following : 15
- (i) Direct and reverse heat engine.
 - (ii) Reversible process and irreversibility.
7. Explain various examples of steady flow devices and explain various applications of first law of thermodynamics. 15

UNIT – IV

8. Explain vapour compression refrigeration cycle in details and compare with Carnot cycle. 15
9. Explain clausius Inequality and entropy in details. 15