

Roll No. ....

**3060**

**B. Tech 3rd Semester (ME)  
Examination – December, 2019**

**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 :** Question one is compulsory having six parts and each part is of 2.5 marks total of 15 marks and remaining questions is of 15 marks. And attempt one question from each Section.

1. (a) What do you mean by State & Process ?
- (b) What is Enthalpy ?
- (c) Define the Zeroth Law of Thermodynamics.
- (d) Ideal Gas Mixture.

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(e) What is Absolute temperature scale ?

(f) Write short note on Carnot cycle.  $2.5 \times 6 = 15$

#### UNIT - I

2. Explain in detail Exact and Inexact differentials. 15

3. Define first law for cyclic and non-cyclic processes and concept of total energy. 15

#### UNIT - II

4. (a) Explain ideal gases and ideal gas mixture. 8

(b) Define compressibility charts-properties of two phase systems. 7

5. How you identify the states and determine the properties ? Explain Mollier's chart. 15

#### UNIT - III

6. Explain steady flow devices with neat sketches. 15

7. Define Kelvin-Planck and Clausius statements with neat sketches. 15

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#### UNIT - IV

8. Define availability function for systems and control volumes undergoing different processes and second law analysis for a control volume. 15

9. Explain with the help of neat sketch basic Rankine cycle and also discuss the reasons of modification on Rankine cycle. 15

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