

24008

**B.Tech. 2nd Semester F-Scheme  
(Common for All Branches) Examination,  
May-2019**

**BASICS OF MECHANICAL ENGINEERING**

**Paper-ME-101-F**

*Time allowed : 3 hours] [Maximum marks : 100*

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*Note : Attempt five questions in total, selecting at least one question from each of four sections. Question No. 1 is compulsory.*

1. Describe the following terms : 5×4=20
- (a) Lathe machine
  - (b) Types of stress
  - (c) Laws of thermodynamics
  - (d) Thermodynamic properties of steam
  - (e) Francis and Keplan Turbine

**Section-A**

2. What is drill machine ? Explain its types with neat and clean diagram. 20
3. State and explain second law of Thermodynamics. 20

## Section-B

4. A reversed Carnot Cycle is used for heating and cooling. The work supplied is 10 KW, if C.O.P is 3.5 for cooling, determine : 20
- (a)  $\frac{T_2}{T_1}$
- (b) Refrigerating effect in tonnes
- (c) C.O.P. for heating
5. Derive efficiency of Francis Turbine. 20

## Section-C

6. Find out the length of Cross belt drive. 20
7. Derive relation between E and K (elastic constants). 20

## Section-D

8. What is automation ? Explain how automation is beneficial for manufacturing system with its advantages. 20
9. What are NC and CNC system ? Explain the difference between N/C and CNC system ? 20