

**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

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 tonns
 - (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. <https://www.haryanapapers.com> 20
9. What are NC and CNC system ? Explain the difference between N/C and CNC system ? 20