

Roll No. ....

**24008**

**B. Tech. 2nd Semester (Common for all  
Branches)**

**Examination – May, 2017**

**BASICS OF MECHANICAL ENGG.**

**Paper : ME-101-F**

**Time : Three Hours ]**

**[ Maximum Marks : 100**

*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 Section. Question No. 1 is compulsory.  
All questions carry equal marks.

**1. Explain following :**

**4 × 5 = 20**

- (a) Working principle of shaper machine
- (b) Functions of refrigerant
- (c) Elasticity and plasticity
- (d) Benefits of manufacturing system
- (e) Types of steam.

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**SECTION – A**

2. (a) Describe various types of chips produced during metal machining. 8  
(b) Find out an expression for specific entropy of wet steam. 8  
(c) Explain specific heat at constant pressure with suitable example. 4
3. (a) How will you measure the dryness fraction of steam by throttling calorimeter, explain? 8  
(b) Derive an expression for work done in polytropic process. 8  
(c) Describe working principle of drilling machine. 4

**SECTION – B**

4. (a) What is the principle of impulse turbine? Explain working of pelton wheel turbine with neat sketch. 10  
(b) What is the principle of refrigeration? Explain ITR of refrigeration. 6  
(c) What are the desirable properties of a refrigerant? 4
5. (a) With suitable sketch explain working of centrifugal pump. 8  
(b) Explain psychrometric chart in detail. 10  
(c) Explain functions of draft tube. 2

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**SECTION – C**

6. (a) Explain stress-strain diagram for mild steel. 8  
(b) Describe working of multi plate clutch. 8  
(c) What are the power transmission elements? 4
7. (a) What is load? Describe different types of loads. 8  
(b) What is function of a clutch? Explain centrifugal clutch with neat sketch. 8  
(c) Explain torsional loading. 4

**SECTION – D**

8. What is Numerical control system? Classify NC machine tool. List its advantages also. 20
9. What is a CNC machine? Explain its general configuration. How it is differ from NC machine. 20

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