

Roll No. ....

**24008**

**B. Tech. Ist Semester (F. Scheme)**

**Examination – December, 2009**

**BASICS OF MECHANICAL ENGG.**

**Paper : ME - 101-F**

*Time : Three hours ]*

*[ Maximum Marks : 100*

*Before answering the question, 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. Q. No. 1 is compulsory. Attempt at least one question from each Section. All questions carry equal marks.*

1. (i) Why quick return mechanism is used in shaper ?
- (ii) Define zeroth law of thermodynamics.
- (iii) What are open, closed and isolated systems ?
- (iv) Why we use Psychometric charts ?
- (v) What is air conditioning ?
- (vi) Define specific speed of turbine.

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P. T. O.

- (vii) Explain rope and chain drives.  
(viii) What is Poisson's ratio ?  
(ix) What is MCU in NC machines ?  
(x) Define stress and strain.  $2 \times 10 = 20$

**SECTION - A**

2. (a) Explain drilling m/c with diagram. 10  
(b) Explain different types of chips in metal cutting. 10
3. (a) Define laws of thermodynamics. 10  
(b) Explain throttling calorimeter. 10

**SECTION - B**

4. (a) Explain simple refrigeration vapour compression cycle. 15  
(b) What is coefficient of performance (C. O. P.) ? 05
5. (a) Explain pelton turbine with diagram. 10  
(b) Explain rotary water pumps. 10

**SECTION - C**

6. (a) Explain single plate clutch. 15  
(b) Explain belt drive for power transmission. 05

7. (a) What is Hook's Law ? Derive an expression for relationship between elastic constants. 15  
(b) Explain stress & strain. 05

**SECTION - D**

8. Explain NC machines in detail. 20  
9. (a) Write down difference between NC & CNC machines. 10  
(b) Explain manufacturing systems. 10