

Roll No.

24008

**B. Tech 2nd Semester "F Scheme"
Examination – May, 2010**

BASICS OF MECHANICAL ENGINEERING

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* question in all, selecting *one* question from each Section. Question No. 1 is compulsory. All questions carry equal marks.

1. (i) Explain working principle of drilling machine.
- (ii) Define internal energy and enthalpy.
- (iii) Define refrigeration and air conditioning.

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- (iv) Why Francis turbine is called mixed flow turbine.
- (v) Explain belt drive.
- (vi) What is Poisson's ratio ?
- (vii) Explain *four* advantages of NC machine.
- (viii) What is Zeroth law of thermodynamics.
- (ix) Why we use Psychometric charts ?
- (x) What is the difference between spur and helical gear ? 2 × 10 = 20

SECTION – A

- 2. (a) Explain different types of chips in metal cutting ? 10
- (b) Define I, II and III law of Thermodynamics. 10
- 3. (a) What is throttling calorimeter ? 10
- (b) Explain 5 operations of lathe m/c. 10

SECTION – B

4. (a) Explain simple refrigeration vapour compression cycle. 15
- (b) Define human comfort. 5
5. (a) Derive an expression for specific speed of turbine. 10
- (b) Explain reciprocating water pumps. 10

SECTION – C

6. (a) Explain with neat diagram, multiplate clutch. 15
- (b) Define different types of gear. 5
7. Explain elastic constants and their relationship. 20

SECTION - D

8. Explain NC machine in detail. 20
9. Define manufacturing system and compare NC and CNC m/Cs. 20