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 Poison's ratio ?

(vii) Explain *four* advantages of NC machine.

(viii) What is Zeroth law of thermodynamics.

(ix) Why we use Psycheometric charts ?

(x) What is the difference between spur and helical gear ? $2 \times 10 = 20$

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

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