Roll No. .....

24169

B. Tech. 4th Sem. (Mechanical Engg.)

Examination – May, 2011

MANUFACTURING TECHNOLOGY-I

Paper : ME-202-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 at least ***one*** question from each Section. ***Q. No. 1*** is ***compulsory***. Each question carries equal marks.

1. (i) What are the basic items required for cutting any material ?

(ii) Describe the basic elements of machining.

(iii) Draw a neat sketch of a single point cutting tool indicating complete geometry on it.

(iv) What are "Crater wear and tool wear" ?

(v) Differentiate between a Jig and a Fixture.

(vi) What do you mean by locating and clamping devices ?

(vii) Is lathe a G.P. or S.P. machine tool ? What are that operations that can be performed on it ?

(viii) Differentiate between cold and hot working.

(ix) What do you mean by High pressure and low pressure Gas welding ?

(x) Differentiate between brazing and soldering.

SECTION – A

2. (a) What do you understand by "Machine ability" ? By which parameters it is generally influenced ?

(b) A M.S. bar of 50 mm dia. was orthogonally machined on a lathe. The following data were obtained :

Feed rate	=	0.5 mm/rev.
Chip thickness	=	1.2 mm.
Rotational speed of work	=	100 r.p.m.

Calculate chip thickness ratio, chip reduction ratio and length of chip removed/minute.

3. (a) What three-effects are produced by the application of cutting fluid at the interface of work and cutting tool ? What are the functions, the cutting fluid performs ?

(b) Name the cutting tool materials and what is the function of alloying elements such as Carbon, chromium and Tungsten ?

SECTION – B

4. Write notes on the following :

(a) Drilling Jigs,

(b) Milling Fixtures,

(c) Lathe fixtures,

(d) Jig Bushes.

5. (a) What do you mean by metrology ? Name the linear measuring instruments and angular measuring instruments used in industries and workshops. What is auto-collimator ? Explain comparator and its types.

(b) What do you mean by surface finish ? Name the surface finishing processes. How surface finish is evaluated ? What are the units of surface roughness ?

SECTION – C

6. What is the difference between a machine and a machine tool ? Give examples of each. Explain about constructional features, specialization, operations and devices of the following machine tools :

(i) Lathe,

(ii) Shaper,

(iii) Milling machine,

(iv) Principles of Capsten and Turret lathes

7. Write short notes on the following :

(i) Pattern allowances,

(ii) Core making,

(iii) Gating system,

(iv) Cupola furnace,

(v) Casting defects and remedies.

SECTION – D

8. (a) How do you classify welding processes ?

(b) Write short notes on the following :

(i) Blanking,

(ii) Forming,

(iii) Extrusion,

(iv) Forging,

(v) Spinning.

9. Explain the following welding processes :

(i) TIG welding,

(ii) MIG welding,

(iii) Laser beam welding,

(iv) Electro slag welding,

(v) Welding defects and remedies
