

**D 50649**

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**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE  
[REGULAR/SUPPLEMENTARY] EXAMINATION, NOVEMBER 2013**

**ME 09 506—METAL CUTTING AND FORMING**

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all the questions.*

1. Differentiate between single point and multiple point cutting tool.
2. Define reaming and broaching.
3. Briefly explain laser beam machining.
4. Differentiate between forming and extrusion.
5. What is press tonnage ?

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

1. Explain the mechanics of chip formation.
2. Differentiate between up and down milling in detail.
3. With a neat diagram explain in detail laser beam machining.
4. With a neat diagram explain in detail plasma arc machining.
5. Explain in detail about the grain flow pattern in forging.
6. Explain about the constructional features in dies and punches.

(4 × 5 = 20 marks)

**Part C**

1. (a) Explain in detail about the mechanics of chip formation.  
(b) Explain about orthogonal and oblique cutting.

*Or*

2. (a) Explain about the economics of machining.  
(b) Explain the tool geometry of single point cutting tool.

(2 × 5 = 10 marks)

**Turn over**

3. (a) Explain about the material removal rate and cutting forces involved in lathe operations.  
(b) Differentiate between cylindrical and surface grinding.

(2 × 5 = 10 marks)

*Or*

4. Explain :

- (a) The different type of grinding wheels ;  
(b) The wheel wear associated with grinding.

(2 × 5 = 10 marks)

5. Explain with a neat diagram :

- (a) Electrical discharge machining ;  
(b) Laser beam machining.

(2 × 5 = 10 marks)

*Or*

6. Explain in detail with a neat diagram :

- (a) Nano fabrication ;  
(b) Micro-machining.

(2 × 5 = 10 marks)

7. Explain the construction and operations of simple and progressive dies with neat sketches.

(10 marks)

*Or*

8. Explain the construction and operation of electro hydraulic forming with a neat sketch.

(10 marks)

[4 × 10 = 40 marks]