



Code No. : 6306

**FACULTY OF ENGINEERING**  
**B.E. 3/4 (Prod.) I Semester (Supplementary) Examination, July 2010**  
**METAL FORMING TECHNOLOGY**

Time : 3 Hours]

**LIBRARY**  
**Vasavi College of Engineering**  
**Hyderabad-500 031**

[Max. Marks : 75

*Note : Answer all questions from Part A. Answer five questions from Part B.*

**PART – A**

**25**

1. What is plasticity cycle ? Explain. 2
2. Is plain rolling an example of plain stress or plain strain condition and why ? 2
3. What is the shunt height of a die ? 2
4. Distinguish compound and progressive die. 3
5. What is spinning and stretch forming operations ? Explain. 3
6. Match the following : 3

**A**

**B**

- |                |                          |  |
|----------------|--------------------------|--|
| a) Diamond die | i) Edge bending of sheet |  |
| b) Feed rolls  | ii) Closed die forging   |  |
| c) Pad force   | iii) Wire drawing        |  |
|                | iv) Planetary roll mill  |  |
7. Why is camber provided on rolls ? 2
  8. Gauge Length and diameter of tensile specimen do not influence percent elongation. (True/False) 2
  9. What are powder rolling and roll bending ? Explain. 3

10. Match the following :

3

A	B
a) Thin sheets	i) impact extrusion
b) I-beams	ii) SEN DIZIMIR mill
c) Tooth paste tubes	iii) Shape rolling
	iv) Embossing

PART – B

50

11. a) Distinguish Vonmises criteria and Tresca criteria for yielding of metals. 6
- b) Describe the advantages and disadvantages of cold working and hot working in metal working. 4
12. a) An aluminium cup of 120 mm depth and 60 mm inside diameter is to be deep drawn from a 4 mm thick sheet metal. Determine the blank size required neglecting the punch and die corner radii. 6
- b) Discuss the methods of reducing cutting forces in blanking and piercing operations. 4
13. a) A 100 mm diameter and 500 mm long mild steel billet is to be hot extruded to a final diameter of 80 mm through a 130 degree total angle die at a speed of 1 meter per minute. Determine the extrusion force and power required for the operation assuming average yield stress of the material as 100 N/mm<sup>2</sup>. 6
- b) Show that variation of drawing load with die angle and explain how various components of total drawing work vary with die angle. 4
14. a) Explain the principle of working of counter blow hammer with a sketch and mention its merits. 5
- b) Explain the design of the forging die for drop forging. 5
15. a) Derive an expression for roll load, roll torque and roll power. 6
- b) Sketch and explain the rolling equipment and rolling mills. 4



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16. Write short notes on **any two** of the following :

(2×5=10 Marks)

- a) Plane stress and plane strain conditions
- b) Types of presses
- c) Flow forming
- d) Hydrostatic extrusion.

17. Write short notes on **any two** of the following :

(2×5=10 Marks)

- a) Isothermal forging
- b) Combination die
- c) Rolling of Rail road rail.

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