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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Sixth Semester, B.E. – Industrial and Production Engineering
Semester End Examination; June – 2016
Theory of Metal Forming

Time: 3 hrs   *Max. Marks: 100*

Note: Answer any **FIVE** full questions, selecting **ONE** full question from each unit.

UNIT – I

1 a.	Explain the following :	
A.	i) Hot working process	6
	ii) Cold working process	6
	iii) Worm working process	5
	iv) Residual stress.	3
2 a.	With neat sketches explain the classification of forming process.	10
b.	Derive an equation for mechanics of metal working by slab method.	10

UNIT – II

3 a.	With a neat sketch explain hydraulic process.	8
b.	Explain open die and closed die forging.	8
c.	Write a short note on forging defects.	4
4 a.	With neat diagram explain the following:	
	i) 2 high mill	
	ii) 2 high mill Reversing	12
	iii) 4 high mill	
	iv) Cluster mill	
b.	Explain rolling defects with neat sketches.	8

UNIT - III

5 a.	Explain with neat diagram direct and indirect extrusion.	8
b.	Explain hydrostatic extrusion process.	5
c.	Illustrate the tube extrusion process with neat sketch.	7
6. a.	Define wire drawing process? Explain rod and wire dreaming process.	10
b.	With sketches explain tube drawing process.	10

UNIT - IV

7 a.	Illustrate with neat sketches forming methods.	10
b.	Define spring back and explain determination of spring back.	10

8 a. Explain the redrawing and reverse drawing process. 8

  b. Explain with neat sketches progressive and compound die. 12

UNIT - V

9 a. With net sketches explain hydraulic forming. 8

  b. With a neat sketch explain principle of rubber forming and explosion forming. 12

10 a. Briefly explain the steps involved in procedure metallurgy process. 12

  b. List the advantages and limitations of high energy rate forming process. 4

  c. List the advantages and limitations of procedure metallurgy. 4

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