



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Fifth Semester, B.E. - Mechanical Engineering

Semester End Examination; Dec. - 2015

Manufacturing Process - III

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

- 1 a. With a neat sketch explain the classification of metal working process on the basis of force applied. 10
- b. Explain the effect of the following on metal working process:
- i) Temperature 10
- ii) Hydrostatic pressure
- 2 a. Compare Tresca and Von miscs yield criteria. 10
- b. Distinguish between wrought products and cast products. 10

UNIT - II

- 3 a. Discuss with relevant sketches the various forging design parameters. 10
- b. With neat sketches explain the defects in rolled products. 10
- 4 a. Describe the effect of front and back tension on rolling load. 7
- b. Explain planetary rolling mill with a neat sketch. 7
- c. Write a note on flow lines in forging. 6

UNIT - III

- 5 a. Explain with neat sketch impact extrusion process. 8
- b. What are the variables associated with extrusion process? Explain any three of them. 12
- 6 a. Write a note on estimation of redundant work in drawing. 8
- b. Explain optimal cone angle and dead zone formation in drawing. 8
- c. List any four defects in extrusion process. 4

UNIT - IV

- 7 a. Sketch and explain: 10
- i) Progressive die ii) Rubber forming
- b. What is limiting drawing ratio? Explain any four defects in deep drawing process. 10
- 8 a. Explain any two punch and die design parameters in deep drawing. 4
- b. Sketch and explain: 10
- i) Compound die ii) Stretch forming
- c. Write a note on forming limit criterion. 6

UNIT - V

- 9 a. Explain briefly, the basic steps of powder metallurgy with a flow chart. 10
- b. Mention by five applications of powder metallurgy. 5
- c. Explain types of plastics. 5
- 10 a. Sketch and explain any two methods of powder production. 10
- b. List the advantages and disadvantages of powder metallurgy. 5
- c. Explain health and safety issues for plastics and ceramics manufacturing environment. 5

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