



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

(An Autonomous Institution affiliated to VTU, Belgaum)

Third Semester, B.E. - Mechanical Engineering

Semester End Examination; Dec.-2015

Manufacturing Process -I

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

1. a. What is manufacturing process? Discuss the classification of Manufacturing process. 10
- b. Discuss the factors to be considered before selecting a particular manufacturing process. 10
2. a. Discuss the advantages and limitations of metal casting process in brief. 8
- b. Explain the various zones of cupola furnace with a neat sketch. 12

UNIT - II

3. a. Discuss the functions of patterns in detail and classification of patterns. 10
- b. Explain any five types of pattern allowances in brief. 10
4. a. What is a core? What are the different types of cores? Explain them briefly. 10
- b. What is Gating system? Discuss briefly any four design aspects in Gating system. 10

UNIT - III

5. a. Explain the CO₂ moulding with a neat sketch. Also discuss the advantages and limitations of the process. 10
- b. Discuss the following casting processes in brief. 10
 - i) Cold chamber die casting
 - ii) Thixo casting process.
6. a. Explain the different steps in Investment casting with a neat sketch. 10
- b. Discuss the squeeze casting along with advantages and disadvantages. 10

UNIT - IV

7. a. With a neat sketch explain Tungsten Inert Gas (TIG) weld process. 10
- b. Discuss the submerged ARC welding (SAW) with a neat sketch. Also write application of the process. 10
8. a. Explain the projection welding process with a neat sketch and discuss the advantages and disadvantages of the process. 10
- b. With a neat sketch discuss the operation of Explosive welding process. 10

UNIT - IV

9. a. What is Heat Affected Zone (HAZ) How it can be reduced? Explain. 10

- b. Why shrinkage takes place in Welds? What measures would you suggest to minimize shrinkage in welds? 10
- 10 a. Explain any five welding defects along with their causes and remedies. 10
- b. What are the effects of residual stresses formed during the welding and how to relieve them? 10

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