



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

(An Autonomous Institution affiliated to VTU, Belagavi)

Third Semester, B.E. - Mechanical Engineering

Semester End Examination; Dec. - 2019

Manufacturing Process - I

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

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|---|----|--|----|
| 1 | a. | Explain the term Manufacturing. Discuss the various factors to be considered while selecting a process for production. | 10 |
| | b. | List the classification of manufacturing process. Explain each of them. | 10 |
| 2 | a. | Define casting process and explain the various steps involved in making a casting. | 10 |
| | b. | Explain with a neat sketch electric arc furnace. | 10 |

UNIT - II

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|---|----|---|----|
| 3 | a. | Define Pattern. Explain different types of pattern allowance with necessary sketches. | 12 |
| | b. | What are the different types of Binders used in moulding sand? | 8 |
| 4 | a. | Explain the desirable properties of moulding sand. | 10 |
| | b. | What are the functions of riser? With a neat sketch, explain open riser. | 10 |

UNIT - III

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|---|----|---|----|
| 5 | a. | Explain with neat sketch shell moulding process and mention its advantages and its limitations. | 10 |
| | b. | Explain Thixocasting process with a neat sketch. | 10 |
| 6 | a. | Explain with neat sketch CO ₂ moulding process. | 10 |
| | b. | Explain with neat sketch centrifugal casting process. Mention its advantages and limitations. | 10 |

UNIT - IV

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|---|----|---|----|
| 7 | a. | Explain with neat sketch Metal Inert Gas (MIG) welding process. | 10 |
| | b. | With neat sketch, explain Submerged Arc Welding (SAW) process. | 10 |
| 8 | a. | Explain the following with neat sketch: | 16 |
| | | i) Spot welding ii) Projection welding | |
| | b. | Explain the principle of Resistance welding. | 4 |

UNIT - V

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|----|----|---|----|
| 9 | a. | Explain the different welding defects and also give causes and remedy. | 12 |
| | b. | Explain shrinkage and residual stress in welds. | 8 |
| 10 | a. | Discuss factors affecting weldability of metals. | 8 |
| | b. | What do you understand by term HAZ? Explain the parameters affecting HAZ. | 12 |