



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

(An Autonomous Institution affiliated to VTU, Belgaum)

Third Semester, B.E. - Automobile Engineering

Semester End Examination; Dec. - 2015

Manufacturing Technology - 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. | With a neat sketch show the various casting terms and explain their function. | 10 |
| | b. Give the board classification of Engineering manufacturing processes along with two examples for each. | 6 |
| | c. List the different factors that are considered while selecting a manufacturing process. Explain briefly. | 4 |
| 2 a. | What are the different allowances given on a pattern? Explain two allowances with neat sketches. | 10 |
| | b. List the essential properties of molding sand. Explain any six of them. | 10 |

UNIT - II

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|------|--|----|
| 3 a. | Discuss different types of binders used in molding sand. | 6 |
| | b. What are the ingredients of core sand? Explain briefly. | 8 |
| | c. With a sketch explain the construction of a core blowing machine. | 6 |
| 4 a. | Explain the shell molding process with suitable sketches. | 10 |
| | b. With a neat sketch explain the vertical centrifugal casting. | 6 |
| | c. List the advantages and limitations for centrifugal casting. | 4 |

UNIT - III

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| 5 a. | With sketch, give the description of Cupola furnace and briefly explain its operation. | 10 |
| | b. List the advantages and disadvantages of an induction furnace. | 6 |
| | c. Write a note on crucible furnaces. | 4 |
| 6 a. | List the common defects in castings. Explain any three. | 10 |
| | b. With a neat sketch discuss the elements of gating system. | 6 |
| | c. Sketch and explain blind riser. | 4 |

UNIT - IV

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| 7 a. | Explain briefly the principle of resistance welding. | 4 |
| | b. With the help of a neat sketch, explain the principle of resistance spot welding. | 10 |
| | c. What are the advantages and applications of seam resistance welding process? | 6 |

- 8 a. With a neat sketch, discuss the principle and operation of TIG welding process. 12
- b. Write a note on atomic hydrogen welding process. 8

UNIT - V

- 9 a. Discuss the formation of different zones in welding. 9
- b. What are the defects in welding? State the causes and the remedy. 8
- c. List the applications of brazing. 3
- 10 a. Explain magnetic particle non-destructive method of inspection, with necessary sketch. 12
- b. With a neat sketch, discuss the radiography method of inspecting a weld. 8

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