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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. - 2014

Manufacturing Technology - I

Time: 3 hrs

Max. Marks: 100

Note : i) Answer FIVE full questions, selecting ONE full question from each Unit.

ii) Assume suitably missing data if any.

Unit - I

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| 1 a. Explain the different types of manufacturing process. | 6 |
| b. Illustrate different types of pattern allowances. | 10 |
| c. Write a note on pattern materials. | 4 |
| 2 a. List the desirable properties of molding sand. | 4 |
| b. Define permeability. Explain standard testing procedure to determine permeability. | 8 |
| c. Explain the following: | 8 |
| i) Sand specimen preparation ii) Sand additives. | |

Unit - II

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| 3 a. Illustrate different types of cores. | 10 |
| b. Explain the importance of clay and water in moulding sand. | 5 |
| c. Write a note on core sands. | 5 |
| 4 a. Sketch and explain shell molding process. | 10 |
| b. Illustrate Hot chamber and cold chamber die casting process. | 10 |

Unit - III

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| 5 a. Sketch and explain the working principle of cupola furnace. | 10 |
| b. Explain the working of electric arc furnace with a suitable sketch. | 5 |
| c. List casting defects, its causes and remedies. | 5 |
| 6 a. Explain the following with a suitable sketches, | |
| i) Gating system | 10 |
| ii) Runner and Riser. | |
| b. List the advantages and limitations of casting process. | 5 |
| c. Write a note on automotive components produced by casting process. | 5 |

Unit - IV

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| 7 a. Define welding process. List advantages and disadvantages of welding process. | 6 |
| b. Illustrate TIG welding process. | 8 |
| c. Sketch and explain Atomic Hydrogen welding process. | 6 |

- 8 a. Sketch and explain electric resistance welding process using a typical resistance welding schedule. 8
- b. Explain Thermit welding process with a suitable sketch. 6
- c. Illustrate explosive welding process. 6

Unit - V

- 9 a. Sketch and explain the following:
 - i) Arc crater
 - ii) Arc blow 16
 - iii) HAZ
 - iv) Welding defects.
- b. Differentiate Brazing and soldering process. 4
- 10 a. With a neat sketch explain fluorescent particle inspections. 8
- b. Explain Holography and Radiography testing methods. 12

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