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

(An Autonomous Institution affiliated to VTU, Belgaum)

Third Semester, B.E. - Industrial and Production Engineering

Semester End Examination; Dec - 2016/Jan - 2017

Production 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. Define casting. List the advantages and limitations of casting process. | 6 |
| b. Explain the various types of cores based on shape and position. | 6 |
| c. With a neat sketch, explain various types of Risers. | 8 |
| 2 a. With a neat sketch, explain the different types of patterns. | 12 |
| b. Write notes on casting defects. | 8 |

UNIT - II

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| 3 a. With a neat sketch, explain sand slinger type of moulding machine. | 8 |
| b. Sketch and explain shell moulding process. | 8 |
| c. List the requirement of base sand for producing a good casting. | 4 |
| 4 a. Discuss the methods used for sand moulding. | 6 |
| b. With a neat sketch, explain the working operation of Jolt-type moulding machine. | 8 |
| c. Sketch and explain green sand moulding procedure. | 6 |

UNIT - III

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| 5 a. With a neat sketch, explain True centrifugal casting process. | 10 |
| b. Sketch and explain the constructional features of a coreless type Induction furnace. | 10 |
| 6 a. Explain with sketch, principle and process of continuous casting. | 10 |
| b. List the classification of furnaces. | 4 |
| c. Write notes on zones in Cupola furnace. | 6 |

UNIT - IV

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| 7 a. Define welding process. List the advantages, disadvantages and applications of welding. | 8 |
| b. With a neat sketch, explain the different flame characteristics. | 12 |
| 8 a. With a neat sketch, explain Inert Gas Welding (TIG). | 10 |
| b. Write notes on Metal Arc Welding. | 5 |
| c. Difference between forward and backward welding. | 5 |

UNIT - V

- 9 a. With neat sketches explain the following :
- i) Butt welding 10
 - ii) Friction welding.
- b. With a neat sketch, explain Laser welding. 10
- 10 a. With a neat sketch explain the metallurgical aspects of various zones closed to HAZ, which leads to structural changes. 10
- b. List and explain the different defects in welding process. 10

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