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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 - 2016/Jan - 2017

Manufacturing Process - 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

- 1 a. Explain the broad classification of manufacturing processes. 10
b. Discuss the factors necessary for the selection of manufacturing process for a production. 10
2 a. What is casting? Discuss the advantages and limitations of casting. 10
b. With a neat diagram, explain the working of cupola furnace. 10

UNIT - II

- 3 a. Discuss any four types of pattern allowances in brief. 10
b. List out various types of patterns and explain any one of them in details. 10
4 a. Briefly explain the properties of moulding sand. 10
b. Explain any five types of casting defects along with their causes and remedies. 10

UNIT - III

- 5 a. Explain the various steps of shell moulding process and list out the applications of shell moulding. 10
b. Discuss the advantages, limitations and applications of Investment casting. 10
6 a. Explain the continuous casting process with neat sketch. 10
b. Discuss the centrifugal casting process with a neat sketch. 10

UNIT - IV

- 7 a. Explain Atomic Hydrogen welding with a neat diagram. Also discuss the advantages and limitations of the process. 10
b. Differentiate between TIG and MIG weldings. 10
8 a. What is Resistance welding? Discuss the classification of Resistance welding. 5
b. Explain the spot welding process with a neat sketch also discuss the advantages of the process. 10
c. With a neat sketch, explain the working principle of seam welding. 5

UNIT - V

- 9 a. What is Heat Affected Zone (HAZ)? Explain how type material and cooling conditions would affect HAZ? 10
b. Discuss briefly any five factors that affect the weld ability of metals. 10
10a. Explain briefly few important weld ability tests. 10
b. Discuss any five welding defects along with remedies. 10