



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

(An Autonomous Institution affiliated to VTU, Belagavi)

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

Semester End Examination; Dec. - 2019

Manufacturing Technology - I

Time: 3 hrs

Max. Marks: 100

Note: i) PART - A is compulsory. **Two** marks for each question.

ii) PART - B: Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks
I : PART - A		10
I a.	What is casting process?	2
b.	List the requirements of Base sand.	2
c.	Define; i) Furnace and ii) Welding.	2
d.	Compare the forward and backward welding.	2
e.	Describe the concept of welding electrode.	2
II : PART - B		90
UNIT - I		18
1 a.	Discuss the following types of patterns with sketch used in casting process:	9
	i) Gated pattern ii) Split pattern iii) Solid pattern	
b.	Explain types of Risers with help of sketch.	9
c.	Explain the steps involved in sand casting.	9
UNIT - II		18
2 a.	List the properties of mould sand. Explain any two in detail.	9
b.	With a neat sketch, explain working principle of Jolt type moulding machine.	9
c.	With sketch, explain gravity die casting, highlighting its applications.	9
UNIT - III		18
3 a.	Discuss the working principle of direct arc furnace with sketch.	9
b.	Briefly explain the classification of welding process. List the advantages and disadvantages of welding process.	9
c.	Discuss the working principle of AHW with sketch.	9
UNIT - IV		18
4 a.	Explain types of flames can be produced in Oxy-acetylene welding.	9
b.	Explain the following:	9
	i) Gas torch used in Gas welding ii) Spot welding	
c.	With neat sketch, explain the working principle of Explosive welding.	9
UNIT - V		18
5 a.	Explain the principle of friction stir welding process, with neat sketch.	9
b.	Explain the principle of magnetic particle inspection with sketch.	9
c.	Summarize the following:	9
	i) Residual stress in welding ii) Flux	