



**P.E.S. College of Engineering, Mandya - 571 401**  
 (An Autonomous Institution affiliated to VTU, Belagavi)  
**Third Semester, B.E. - Automobile Engineering**  
**Semester End Examination; Dec. - 2019**  
**Manufacturing Methods**

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
<b>I : PART - A</b>		<b>10</b>
I a.	What is casting?	2
b.	Explain any two Flames used in gas welding.	2
c.	Write a note on Up milling and Down milling.	2
d.	List the applications of Abrasive jet machining.	2
e.	Mention few Applications of Forging.	2
<b>II : PART - B</b>		<b>90</b>
<b>UNIT - I</b>		<b>18</b>
1 a.	Enumerate the desirable properties of moulding sand.	9
b.	With neat sketch, explain shell moulding process.	9
c.	List the casting defects. List the causes and recommend remedial measures to overcome them.	9
<b>UNIT - II</b>		<b>18</b>
2 a.	Explain principle of Resistance welding and Thermit welding.	9
b.	What are the welding defects? Explain the methods to detect the welding defects.	9
c.	Differentiate between welding, soldering and brazing.	9
<b>UNIT - III</b>		<b>18</b>
3 a.	Sketch and explain the centreless grinding machine.	9
b.	Sketch and explain the shaper with labeling principle parts of it.	9
c.	Explain briefly with neat sketches of any six drilling machine operations.	9
<b>UNIT - IV</b>		<b>18</b>
4 a.	With a neat sketch, explain the working principle of USM.	9
b.	What are the basic requirements of dielectric fluid used in EDM?	9
c.	What are the advantages and disadvantages of chemical Machining process?	9
<b>UNIT - V</b>		<b>18</b>
5 a.	Explain with neat sketches different types of rolling mill arrangements.	9
b.	With neat sketches, explain briefly direct and indirect extrusion processes.	9
c.	What is powder metallurgy? Explain steps involved and applications of powder metallurgy.	9