



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; March / April - 2022 Manufacturing Methods

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The Students will be able to:

CO1: To discuss various manufacturing processes and to identify the types of molding and casting processes.

CO2: To identify and study different types of welding and special types of welding.

CO3: Able to explain the working principles of Lathes, planning and shaping machines. Classification of Lathes, planning and shaping machine.

CO4: Able to explain milling machines, Describe Non-traditional machining processes. Also describe various Surface finishing processes.

CO5: To discuss the application of Forging, Rolling, extraction, wire drawing spinning Powder metallurgy technique.

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	BLs	COs	POs
I : PART - A		10			
I a.	List the classification of manufacturing processes.	2	L1	CO1	PO1
b.	Explain the principle of Arc welding.	2	L2	CO2	PO1
c.	Explain any two operations performed on Lathe machine.	2	L2	CO3	PO1
d.	Explain the working principle of Plasma Arc machining.	2	L2	CO4	PO1
e.	What do you mean by Hot Rolling Process?	2	L2	CO5	PO1
II : PART - B		90			
UNIT - I		18			
1 a.	Explain with neat sketch, centrifugal casting.	9	L2	CO1	PO1
b.	Explain with neat sketch, investment casting process.	9	L2	CO1	PO1
c.	With neat sketch, explain the terms of a sand mould.	9	L2	CO1	PO1
UNIT - II		18			
2 a.	Explain Gas welding process.	9	L2	CO2	PO1
b.	Explain Soldering process with applications.	9	L2	CO2	PO1
c.	Explain with neat sketch, Thermit welding process.	9	L2	CO2	PO1
UNIT - III		18			
3 a.	Explain the different operations performed on drilling machine (Any three).	9	L2	CO3	PO1
b.	Explain the factors for selecting the Grinding wheels.	9	L2	CO3	PO1
c.	Explain the following milling operations with neat sketches:	9	L2	CO3	PO1
	i) Plain milling ii) Gang milling iii) Form Milling				

UNIT - IV**18**

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| 4 a. Give the classifications of non-conventional machining processes. | 9 | L2 | CO4 | PO1 |
| b. Explain with neat sketch, Ultra sonic machining process. | 9 | L2 | CO4 | PO1 |
| c. Explain with neat sketch, Electron Beam Machining. | 9 | L2 | CO4 | PO1 |

UNIT - V**18**

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| 5 a. Explain with neat sketch, the rolling process and mention the applications. | 9 | L2 | CO5 | PO1 |
| b. Explain about Smith Forging, Drop Forging and Press Forging operations with sketches. | 9 | L2 | CO5 | PO1 |
| c. Explain the steps involved in Powder metallurgy process. | 9 | L2 | CO5 | PO1 |

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