

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***Third Semester, B.E. - Industrial Production and Engineering****Semester End Examination; March / April - 2022****Manufacturing Technology - I**

Time: 3 hrs

Max. Marks: 100

Course Outcome*The Students will be able to:**CO1: Explain the requirements of patterns, Binder, Additives and core.**CO2: Identify and explain different types of Sand Moulds, Moulding Machines & Metal Moulds.**CO3: Describe different Welding processes and melting furnace with its applications.**CO4: Identify different advance welding processes with its Industrial applications.**CO5: Explain concept of friction stir welding and Microstructure concept to meet Industrial requirements.***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.	Give the classification of manufacturing process.	2	L2	CO1	PO2
b.	Write the properties of base sand.	2	L2	CO2	PO2
c.	Mention and list out the different types of Furnaces.	2	L2	CO3	PO2
d.	Mention any two advantages and disadvantages of EBW.	2	L2	CO3	PO2
e.	Mention and list out the welding defects.	2	L2	CO4	PO3
II : PART - B		90			
UNIT - I		18			
1 a.	Define Casting. What are the steps involved in casting process.	9	L1	CO1	PO1
b.	Define Pattern. With neat sketch, explain any two types of pattern.	9	L1	CO1	PO2
c.	With neat sketch, explain the casting defects.	9	L2	CO1	PO2
UNIT - II		18			
2 a.	With neat sketch, explain Jolt type of moulding machines.	9	L2	CO2	PO2
b.	With neat sketch, explain Investment moulding.	9	L2	CO2	PO2
c.	With neat sketch, explain centrifugal casting process.	9	L2	CO2	PO2
UNIT - III		18			
3 a.	With neat sketch, describe the detailed construction features of Cupola furnace.	9	L1	CO8	PO1
b.	Give the detailed classification of welding process and also write the basic principle of MAW.	9	L1	CO3	PO1
c.	Compare the TIG and MIG welding process.	9	L1	CO3	PO1

UNIT - IV**18**

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|------|-----------------------------------------------------------------------|---|----|-----|-----|
| 4 a. | With neat sketch, explain Oxy-Acetylene welding process. | 9 | L2 | CO3 | PO2 |
| b. | With neat sketch, explain LBW and also write its merits and demerits. | 9 | L2 | CO3 | PO2 |
| c. | With neat sketch, explain explosive welding technology. | 9 | L2 | CO3 | PO2 |

UNIT - V**18**

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|------|-----------------------------------------------------------------------|---|----|-----|-----|
| 5 a. | Write the merits, demerits and applications of friction stir welding. | 9 | L2 | CO2 | PO3 |
| b. | Write the concept of electrodes. | 9 | L2 | CO2 | PO3 |
| c. | Explain briefly some parameters effects on HAZ. | 9 | L3 | CO3 | PO3 |

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