



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; March - 2021
Manufacturing Technology

Time: 3 hrs

Max. Marks: 100

Course Outcomes

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.	What are the functions of pattern?	2	L1	CO1	PO1
b.	Define Collapsibility and Permeability of moulding sand.	2	L1	CO2	PO1
c.	Mention the classification of furnaces based on the type of metal it can melt.	2	L1	CO3	PO1
d.	Mention any two advantages and disadvantages of projection welding.	2	L1	CO4	PO1
e.	What are the functions of flux?	2	L1	CO5	PO1
II : PART - B		90			
UNIT - I		18			
1 a.	What is Riser? With a neat sketch, explain types of Risers.	9	L1,2	CO1	PO1,2
b.	With neat sketches, explain the different types of gates.	9	L2	CO1	PO2
c.	Explain any four types of cores based on the position of core and their uses.	9	L2	CO1	PO2
UNIT - II		18			
2 a.	With a neat sketch, explain Jolt Squeeze type of moulding machine.	9	L2	CO2	PO2
b.	Sketch and explain carbon dioxide moulding process.	9	L2	CO2	PO2
c.	With a neat sketch, explain slush casting.	9	L2	CO2	PO2
UNIT - III		18			
3 a.	With a neat sketch, explain TIG.	9	L2	CO3	PO2
b.	With neat sketch, explain working of direct arc electric furnace.	9	L2	CO3	PO2
c.	Explain the working principle of Atomic Hydrogen Welding (AHW) with suitable sketch.	9	L2	CO3	PO2

UNIT - IV**18**

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|------|---|---|----|-----|-----|
| 4 a. | With a neat sketch, explain Oxy-Acetylene welding process. | 9 | L2 | CO4 | PO2 |
| b. | With a neat sketch, explain the working of spot welding. | 9 | L2 | CO4 | PO2 |
| c. | With a neat sketch, explain the working of electron beam welding. | 9 | L2 | CO4 | PO2 |

UNIT - V**18**

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|------|---|---|----|-----|-----|
| 5 a. | Write a note on residual stresses. | 9 | L2 | CO5 | PO2 |
| b. | Explain with a sketch, structure of welds. | 9 | L2 | CO5 | PO2 |
| c. | Explain with a sketch, formation of different zones in welding. | 9 | L2 | CO5 | PO2 |

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