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ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. (Full Time) - END SEMESTER EXAMINATIONS, APRIL / MAY 2025

Mechanical Engineering
II Semester
ME5251 & Manufacturing Processes
(Regulation 2019)

Time : 3hrs

Max.Marks : 100

- CO1 To provide the knowledge on the working principles of various metal casting processes.
CO2 To explain the working principles of various metal joining processes.
CO3 To discuss the working principles of bulk deformation of metals.
CO4 To render the knowledge on the working principles of sheet metal forming process.
CO5 To get familiarize with the working principles of plastics molding.

BL – Bloom's Taxonomy Levels

(L1-Remembering, L2-Understanding, L3-Appling, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	What are the properties of molding sand?	2	1	2
2	Write the applications of shell casting.	2	1	2
3	What are the different types of flames in oxy acetylene gas welding?	2	2	2
4	List some of the weld defects.	2	2	3
5	Differentiate between hot working and cold working process.	2	3	3
6	What is meant by tube drawing.	2	3	2
7	Distinguish between blanking and piercing process.	2	4	3
8	What is meant by super plastic forming.	2	4	3
9	Differentiate between thermoplastic and thermosetting plastic	2	5	2
10	What is meant by film blowing?	2	5	2

PART- B (5 x 13 = 65 Marks)
(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain the types of patterns used in casting process and its various allowances.	13	1	2
OR				
11 (b)	Explain the Centrifugal Casting Process with a neat labeled sketch mentioning its Advantages and Applications.	13	1	2

12 (a)	Enumerate the components of submerged arc welding process with neat sketch. How does it differ from gas metal arc welding process?	13	2	3
OR				
12 (b)	Explain the principle and construction of electron beam welding. List the advantages and applications.	13	2	3
13 (a)	Explain the different types of forging operations and its characteristics with neat sketch.	13	3	2
OR				
13 (b)	Explain the principle of rolling process and explain the various types of rolling mills with neat sketch.	13	3	2
14 (a)	Explain any two methods to evaluate the formability of sheet metals, ensuring their suitability for industrial forming processes	13	4	3
OR				
14 (b)	Explain the principle and construction of Electromagnetic pulse forming with neat sketch.	13	4	3
15 (a)	Explain the screw type injection molding machine with a neat sketch.	13	5	2
OR				
15 (b)	Explain the compression molding Process with neat sketch. Write the applications of this process in manufacturing automotive, electrical components and consumer goods.	13	5	2

PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	Explain the Sand Casting Process with a Neat Labeled Diagram. Also, list and describe any six common defects in Sand Casting.	15	1	4

