K. K. Wagh Institute of Engineering Education & Research, Nashik

(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:III
Class:SY	Program:B.Tech
Branch Code:MEC	Pattern:2022
Name of Course:Manufacturing Processes	Course Code:MEC222005
Max. Marks:60	Duration:2.30 Hrs.

Instructions: Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 02 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome of the Question/sub-question.

		Marks	CO
Question No. 1			
1a)	Explain the different types of moulding sand used in casting and discuss how the selection of improper sand type can lead to casting defects.	(6)	CO1
Question No. 2			
2a)	Classify the different types of forging processes and explain the closed-die forging process. Discuss possible defects that may occur in this process due to improper process parameters.	(6)	CO1
Question No. 3			
3a)	List the different types of bending operations used in sheet metal forming and explain the mechanism of any two operations with neat sketches	(8)	C02
	OR		
3b)	Explain the working mechanism of a progressive die and a combination die used in sheet metal forming operations with neat sketches.	(8)	C02
3c)	A compound die will be used to blank and punch a large washer out of aluminum alloy sheet stock 3.80 mm thick. The outside diameter of the washer is 60.0 mm and the inside diameter is 28.0 mm. Determine (a) the punch and die sizes for the blanking operation, (b) the punch and die sizes for the punching operation, and (c) Blanking force required if the aluminum has a shear strength 320 MPa Take allowance 6% of sheet thickness	(8)	C02
	OR		
3d)	A part of length 10 mm and height 20 mm is to be made from sheet of 2 mm thick and 1000 mm length. Determine: i) Stock Strip layout ii) No of parts produced iii) % utilization of strip.	(8)	C02

Question No. 4

4a)	Explain the Shielded Metal Arc Welding (SMAW).	(8)	CO3
	OR		
4b)	Explain various types of flames used in gas welding with sketch.	(8)	CO3
4c)	Explain GTAW process with neat sketch.	(8)	CO3
	OR		
4d)	Explain Carbon Arc Welding neat sketch.	(8)	CO3

Question No. 5

5a)	Apply your understanding to provide polymer classification in detail and suggest appropriate polymer materials for specific engineering components such as gears, bottles, or electrical insulators.	(8)	CO4
	OR		
5b)	Apply your understanding of polymer behavior to compare thermoplastics and thermosetting plastics.	(8)	CO4
5c)	Apply your understanding of polymer manufacturing to analyze the process used for producing hollow plastic components.	(8)	CO4
	OR		
5d)	Apply your understanding of thermoforming to explain any one thermoforming process with well labelled sketch.	(8)	CO4

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