

## B.E./B.Tech - DEGREE EXAMINATIONS, NOV / DEC 2025

Third Semester

## Mechanical Engineering

## 24MEPW301 – MANUFACTURING PROCESSES WITH LABORATORY

Regulations - 2024

Duration: 3 Hours

Max. Marks: 100

**PART - A (MCQ) (10 × 1 = 10 Marks)**

Answer ALL Questions

	<i>Marks</i>	<i>K – Level</i>	<i>CO</i>
1. Define a pattern in casting. (a) Tool for cutting metal (b) Replica of the final casting (c) Measuring device (d) Mould box	1	K1	CO1
2. Identify the test that determines sand fineness. (a) Permeability test (b) Clay content test (c) Sieve analysis (d) Moisture test	1	K1	CO1
3. Choose the welding process using a non-consumable electrode. (a) MIG (b) SMAW (c) TIG (d) SAW	1	K1	CO2
4. Define brazing. (a) Joining without filler metal (b) Joining using filler metal below the melting point of the base metal (c) Temporary joining (d) Plastic joining	1	K1	CO2
5. Choose the process used to reduce the sheet/rod diameter. (a) Wire drawing (b) Casting (c) Piercing (d) Broaching	1	K1	CO3
6. Choose the extrusion process that requires lubrication. (a) Cold extrusion (b) Casting (c) Hot extrusion (d) Welding	1	K1	CO3
7. Select the process used to produce cups from flat sheets. (a) Extrusion (b) Drawing (c) Casting (d) Rolling	1	K1	CO4
8. Identify the machine used for stretching the sheet. (a) Shaper (b) Press brake (c) Stretch forming machine (d) Milling machine	1	K1	CO4
9. Identify the process used for mass-producing plastic toys. (a) Extrusion (b) Injection moulding (c) Casting (d) Forging	1	K1	CO5
10. Select an example of a polymer matrix material. (a) Epoxy (b) Copper (c) Ceramic (d) Steel	1	K1	CO6

**PART - B (12 × 2 = 24 Marks)**

Answer ALL Questions

11. Identify the properties of moulding sand.	2	K1	CO1
12. Classify the various types of furnaces.	2	K1	CO1
13. State the function of flux in welding.	2	K1	CO2
14. Compare brazing with soldering.	2	K1	CO2
15. List the various forging operations.	2	K1	CO3
16. Explain the tube drawing process.	2	K1	CO3
17. Mention the characteristics of sheet metal.	2	K1	CO4
18. Describe the principle of high-energy rate forming (HERF).	2	K1	CO4
19. List the advantages and disadvantages of plastics.	2	K1	CO5
20. Define transfer moulding.	2	K1	CO5
21. Classify the types of matrix materials.	2	K1	CO6
22. List the drawbacks of composites.	2	K1	CO6

**PART - C (6 × 11 = 66 Marks)**

Answer ALL Questions

23. a) (i) Classify the types of patterns and explain any three. 6 K2 CO1  
(ii) Compare different pattern allowances with examples. 5 K2 CO1
- OR**
- b) Discuss the common casting defects, their causes, and remedies. 11 K2 CO1
24. a) Illustrate the construction and working of manual metal arc welding. 11 K2 CO2
- OR**
- b) Explain the working principle of friction stir welding and state its advantages. 11 K2 CO2
25. a) Illustrate the different types of arrangements of rolls in the rolling mills with neat sketches. 11 K2 CO3
- OR**
- b) Explain the various types of extrusion processes with neat sketches. 11 K2 CO3
26. a) Diagram the various shearing and banding operations with neat sketches. 11 K2 CO4
- OR**
- b) Compare the explosive forming process with electro-hydraulic forming and explain the explosive forming process with a neat sketch. 11 K2 CO4
27. a) Identify the difference between plunger and screw type injection moulding and explain the plunger type with a neat sketch. 11 K2 CO5
- OR**
- b) Explain the principle and working of compression moulding with a neat sketch. 11 K2 CO5
28. a) Compare particles, whiskers, and fiber reinforcement in composite materials. 11 K2 CO6
- OR**
- b) Categorize the various types of fibers used in composite and explain them in detail. 11 K2 CO6