

PRN No.

PAPER CODE

U315-2111C (ESE)

(AY:2025-26) December 2025 (ENDSEM) EXAM
TY (SEMESTER - I)COURSE NAME: Advanced Manufacturing Processes Branch: Mechanical COURSE CODE: ME31234C
T.Y (Pattern 2023)

Time: [1Hr 30 Min]

[Max. Marks: 40]

(*) Instructions to candidates:

- 1) Figures to the right indicate full marks. Use of scientific calculator is allowed
- 2) Use suitable data wherever required
- 3) All questions are compulsory. Solve any two sub question each from Questions 1 and 2
- 4) Solve any one sub question (2 marks) from Questions 3 ,4 ,5 and 6 and sub question of 4 marks is compulsory from questions 3,4,5,and 6

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) Explain the forward tube spinning process used for rocket motor cases.	[4]	1	2
	b) Describe with a neat sketch the magnetic pulse forming process.	[4]	1	2
	c) Explain the working principle of laser bending or micro-bending process with a neat sketch.	[4]	1	2
Q2	a) Describe the friction stir welding (FSW) process used for joining aluminum alloy 6061 (Al6061).	[4]	2	2
	b) Explain the working of the dry hyperbaric welding process with a neat sketch.	[4]	2	2
	c) Explain with a neat sketch the working of the microwave welding process.	[4]	2	2
Q3	a) State the applications of the Electrolytic in-process dressing.	[2]	3	1
	OR			
	b) List the applications of the electrolytic jet machining process.	[2]	3	1
	c) Explain with a sketch the working principle of abrasive water jet machining with process parameters.	[4]	3	2
Q4	a) State the parameters that influence the performance of Ultrasonic micromachining using a cause and effect diagram.	[2]	4	1
	OR			

	b) State the limitations of diamond being used as a cutting tool for ultra-precision micromachining.	[2]	4	1
	c) Describe with a neat sketch the working principle of the Focused Ion Beam Machining (FIB Machining) process.	[4]	4	2
Q.5	a) State the generalized steps to carry out the additive manufacturing process. OR	[2]	5	1
	b) State the different diffusion mechanisms employed in the Powder Bed Fusion process.	[2]	5	1
	c) Describe with a neat sketch the sheet lamination process.	[4]	5	2
Q.6	a) State the working principle of X-ray photoelectron spectroscopy. OR	[2]	6	1
	b) State the limitations of electron microscopes over the optical microscope.	[2]	6	1
	c) Explain with a sketch the operating principle of X-ray diffraction spectroscopy.	[4]	6	2

[Note- BT Level- 1-Remember, 2-Understand, 3-Apply, 4-Analyse, 5- Evaluate, 6-Create]