Total No. of Printed Pages: 1

PRN No.	

PAPER CODE	U313-2115-C-E31

December 2023 (ENDSEM) EXAM

TY (SEMESTER - I)

COURSE NAME: ADVANCED MANUFACTURING PROCESSES **Branch: Mechanical** **COURSE CODE: MEUA31205C**

(PATTERN 2020)

Time: [1Hr. 30 Min] **[Max. Marks: 40]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any one sub question fromQuestion 3 and any two sub questionseach from Questions4,5 and 6 respectively.**

Q.No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	Distinguish forward and backward flow forming.	[2]	1	2
Q.2	Distinguish laser beam and electron beam welding processes.	[2]	2	2
Q.3	a) Explain with schematic the working principle of shaped tube electrolytic machining process.	[6]	3	2
	b) Discuss the process capabilities of electrochemical grinding with a schematic of the process.	[6]	3	2
Q.4	a) Discuss the various mechanisms which contribute in the removal of material when using ultrasonic micromachining process.	[5]	4	2
	b) Explain with a schematic the importance of main components of diamond turn machine.	[5]	4	2
	c) Distinguish the ultrasonic machining process with ultrasonic micromachining process in terms of abrasive particle size, tool or feature size, static load, vibration frequency, and amplitude.	[5]	4	2
Q.5	a) Discuss how additive manufacturing technique will lead to direct digital manufacturing.	[5]	5	2
	b) Explain with a schematic the salient features of a powder bed fusion process.	[5]	5	2
	c) Describe the importance of 'post processing' of parts after additive manufacturing.	[5]	5	2
Q.6	a) Explain with a schematicthe construction of an energy dispersive x-ray spectroscopy.	[5]	6	2
	b) Explain with a schematic the operating principle of scanning electron microscope.	[5]	6	2
	c) Distinguishelectron microscopes over optical microscopes.	[5]	6	2