Total No. of Printed Pages: 1

PRN No.		PAPER CODE	U 3l3-2115C(RE)

COURSE NAME: ADVANCED MANUFACTURING PROCESSES

Branch: Mechanical

COURSE CODE: MEUA31205C

(PATTERN 2020)

Time: [2 Hrs]   [Max. Marks: 60]

(*) 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 two sub questions each from each Question 1 ,2, 3,4,5,and 6 respectively**

Q. No.		Question Description	Max. Marks	CO mapped	BT Level
Q.1	a)	Discuss with schematic salient features of shear spinning process.	[5]	1	2
	b)	Discusswith schematic salient features of electrohydraulic forming.	[5]	1	2
	c)	Explain with a schematic the principle and important features of high energy rate forming process.	[5]	1	2
Q.2	a)	Explain with schematic the importance of tool design in friction stir welding.	[5]	2	2
	b)	Distinguish electron beam welding with laser beam welding from quality of weld perspective.	[5]	2	2
	c)	Explain with schematic extrusion welding process with the process parameters in detail.	[5]	2	2
Q.3	a)	Discuss with schematic the salient features of shaped tube electrolytic machining.	[5]	3	2
	b)	Distinguish the electrochemical grinding with conventional grinding.	[5]	3	2
	c)	Explain the various process parameters which affect the performance of electrolytic in-process dressing.	[5]	3	2
Q.4	a)	Describe the requirements for a cutting tool to be satisfied when usedin the micro-machining domain.	[5]	4	2
	b)	Explain with a schematic the working principle of ultrasonic micromachining.	[5]	4	2
	c)	Discuss with schematic salient features of optical lithography.	[5]	4	2
Q.5	a)	Describe with neat sketchPowder Bed Fusion Process.	[5]	5	2
	b)	Explain how additive manufacturing technique will lead to direct digital manufacturing.	[5]	5	2
	c)	Discuss applications of additive manufacturingin the aerospace industry and medical fields.	[5]	5	2
Q.6	a)	Distinguish optical and electron microscopes.	[5]	6	2
	b)	Explain operating principle of scanning electron microscope with neat sketch.	[5]	6	2
	c)	Explain with sketch the principle of scanning tunneling microscopy using constant current mode and constant height mode.	[5]	6	2