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PAPER CODE	U314-2115-C (ESE)

(AY:2024-25) December 2024 (ENDSEM) EXAM

TY (SEMESTER - I)

COURSE NAME: ADVANCE MANUFACTURING PROCESSES **Branch: MECHANICAL** **COURSE CODE: MEUA31205C**

TY (PATTERN 2020)

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) Describe the principle of magnetic pulse forming and explain its advantages in metal forming processes.	[4]	1	2
	b) Classify special forming process and write down its characteristics?	[4]	1	2
	c) Discuss How does the metal spinning process ensure precision in the final product shape with neat sketch?	[4]	1	2
Q2	a) Describe the important welding zones for friction stir welding with the help of neat sketch.	[4]	2	2
	b) Differentiate with respect to constructional features of electron beam welding and fusion welding.	[4]	2	2
	c) Interpret the basic principle of ultrasonic welding and how it joins materials.	[4]	2	2
Q3	a) Classify Non-traditional machining processes according to the source of energy used to generate such a machining action? OR	[2]	3	2
	b) Discuss important process parameters of water jet cutting.	[2]	3	2
	c) interpret the role of electron beam machining in advance manufacturing process and describe its working principle	[4]	3	3

Q4	a) What are the functions of micro machining process? OR b) Differentiate characteristics of micro and nano fabrication process c) Examine why we need micro machining and nano fabrication with application.	[2] [2] [4]	4 4 4	2 2 3
Q.5	a) How can infill density settings in FDM influence the strength and weight of a part? OR b) Differentiate between PLA and ABS used in FDM 3D printing. c) Analyze how nozzle temperature influences the printing process and final product quality.	[2] [2] [4]	5 5 5	3 3 3
Q.6	a) List one key difference between a light microscope and an electron microscope. OR b) What is the basic purpose of a Transmission Electron Microscope (TEM)? c) Apply the working principle of STM to describe how it enables the study of conductive surfaces at the atomic level.	[2] [2] [4]	6 6 6	1 1 3

Note: [BT Level 1: Remember 2: Understand 3: Apply 4: Analyze 5: Evaluate 6: Create]