

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2024****Subject Code:3161922****Date:24-05-2024****Subject Name:Advanced Manufacturing Processes****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain the importance of Advance Manufacturing Processes in industry	03
	(b) Discuss application of Electric Discharge Machining (EDM) and Electron Beam Machining (EBM)	04
	(c) Write classification of Unconventional Machining Processes in detail.	07
Q.2	(a) Write comparison between Abrasive Jet Machining (AJM) and Abrasive Water Jet Machining (AWJM)	03
	(b) Explain the effect of process parameters on MRR in AJM Process	04
	(c) Explain with sketch the principal of operation, mechanism of metal removal of Laser Beam Machining (LBM). Also write advantage, disadvantages and application of Laser Beam Machining.	07
	OR	
	(c) Enlist the process parameters of Electrochemical Machining (ECM) process and discuss the effect of any two process parameters on material removal rate.	07
Q.3	(a) What is Plasma Arc Machining (PAM)? Explain mechanism of the metal removal	03
	(b) What is LASER? explain types of Lasers with their properties.	04
	(c) Explain Electro Chemical grinding (ECG) Process in detail with neat diagram	07
	OR	
Q.3	(a) State any four essential requirements of dielectric fluid used in EDM	03
	(b) What is the keyhole? What is the mechanism of keyhole formation?	04
	(c) Draw schematic diagram of Ultrasonic Machining (USM) and explain its element of process, application and limitation.	07
Q.4	(a) Write difference between Additive, Subtractive and Formative Manufacturing.	03
	(b) “Rapid prototyping processes having short product development cycle compared to conventional processes” Evaluate the statement.	04
	(c) Describe the Stereo Lithography Systems with neat sketch.	07
	OR	
Q.4	(a) Write disadvantages of Rapid Prototyping.	03
	(b) Write application of Laminated Object Manufacturing (LOM) processes	04
	(c) Explain Fused Deposition Modelling (FDM) Process in detail with their advantages, disadvantages, and applications.	07
Q.5	(a) Write Advantages of Filament Winding.	03
	(b) List glass forming process. Explain any one in details.	04
	(c) Explain Spray Lay-Up Process in detail with neat diagram.	07
	OR	
Q.5	(a) Draw Process Flow Diagram for Glass Manufacturing.	03
	(b) Write the desired properties of Matrix.	04
	(c) Explain with sketch vacuum-bag moulding process. Give advantages and limitations of it.	07
