

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021****Subject Code:3161922****Date:04/12/2021****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 why industry requires Advance Manufacturing Processes?	03
	(b) Write comparison between Conventional and Unconventional Machining Processes.	04
	(c) Write classification of Unconventional Machining Processes in detail.	07
Q.2	(a) Write material removal process/mechanism of USM.	03
	(b) Write comparison between AJM and AWJM.	04
	(c) Explain USM Process in detail with neat diagram.	07
	OR	
	(c) Explain WJM Process in detail with neat diagram.	07
Q.3	(a) Write applications of PBM.	03
	(b) Write limitations of EDM.	04
	(c) Draw Ishikawa Cause and Effect Diagram of EDM.	07
	OR	
Q.3	(a) Write main functions of Electrolyte in ECM.	03
	(b) Write types of Lasers with their properties.	04
	(c) Explain Chemical Milling (CHM) Process in detail with neat diagram.	07
Q.4	(a) Write comparison between additive & subtractive manufacturing.	03
	(b) Write advantages and disadvantages of SLA.	04
	(c) Explain SGC Process in detail with neat diagram.	07
	OR	
Q.4	(a) Write advantages of Rapid Prototyping.	03
	(b) Write applications of LOM.	04
	(c) Explain FDM Process in detail with neat diagram.	07
Q.5	(a) Explain toughened or tempered glass.	03
	(b) Write steps of glass manufacturing.	04
	(c) Explain Rolled Glass process in detail with neat diagram.	07
	OR	
Q.5	(a) Explain the composition of Composite Material.	03
	(b) Write the desired properties of Matrix.	04
	(c) Explain Spray Lay-Up Process in detail with neat diagram.	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3161922****Date:10/06/2022****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

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|------------|---|-----------|
| Q.1 | (a) What do you mean by unconventional machining processes? Give any two examples of mechanical energy based unconventional machining processes. | 03 |
| | (b) Write any four specific applications of glass. | 04 |
| | (c) Classify the composite materials and give example for each group. | 07 |
| Q.2 | (a) Enlist the three applications of laser beam machining (LBM) process. | 03 |
| | (b) Demonstrate the working principle of Electric Discharge Machining (EDM) process through sketch. | 04 |
| | (c) Enlist the process parameters of Electrochemical Machining (ECM) process and discuss the effect of any two process parameters on material removal rate. | 07 |
| | OR | |
| | (c) Through the sketches explain the effect of any three process parameters of plasma arc machining (PAM) process on material removal rate. | 07 |
| Q.3 | (a) Write any three specific applications of rapid prototyping processes (RP). | 03 |
| | (b) Distinguish between chemical machining and electrochemical machining. | 04 |
| | (c) Describe the Stereo Lithography Systems with neat sketch. | 07 |
| | OR | |
| Q.3 | (a) Write the any three applications of Fusion Deposition Modelling. | 03 |
| | (b) “Rapid prototyping processes having short product development cycle compared to conventional processes” Evaluate the statement. | 04 |
| | (c) Describe the Laminated Object Manufacturing with neat sketch. | 07 |
| Q.4 | (a) Enlist any three raw materials used to manufacture the glass. | 03 |
| | (b) Classify the RP processes based of source of energy used. | 04 |
| | (c) Discuss the advantage and disadvantages of thermal jet printer processes. | 07 |
| | OR | |
| Q.4 | (a) Explain the terms Glass and Glassy State. | 03 |
| | (b) Appreciate any four advantages of Resin Transfer Molding (RTM) process. | 04 |
| | (c) Write the short note on any one glass forming processes. | 07 |
| Q.5 | (a) Write the types of glass furnaces. | 03 |

- (b) Discuss the properties of glass. **04**
- (c) Explain Pultrusion process in detail with neat diagram. **07**

OR

- Q.5**
- (a) Define the composite material with any two examples. **03**
 - (b) Determine the important process parameters of Spray Lay-Up. **04**
 - (c) Summarize the polymer matrix composites in context of strength and stiffness compared to polymers **07**
