

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**
