Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710807 **Date:06/01/2017**

Subject Name: Advanced materials Processing Techniques

Time: 2:30 pm to 5:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Classify the advanced metal forming processes through source of energy used; as a classification criterion.	**07**
	(b)	Enlist the advantages and disadvantages of thermal and mechanical type nontraditional process group.	**07**
Q.2	**(a)**	Sketch the material removal mechanics of abrasive flow machining process.	**07**
	(b)	Discuss any one material removal model of advanced fine finishing process.	**07**
		OR	
	(b)	Discuss the tool design criteria of electrochemical machining process.	**07**
Q.3	**(a)**	Through the sketch, demonstrate the working principle of magnetic abrasive finishing process and labeled the same.	**07**
	(b)	Explain the working principle of rubber forming process with neat sketch.	**07**
		OR	
Q.3	**(a)**	Distinguish the magnetic abrasive finishing (MAF) and magnetorheological abrasive flow finishing (MRAFF).	**07**
	(b)	Enlist the process parameters of powder rolling process and discuss the effect of individual parameter.	**07**
Q.4	**(a)**	Write the short note on magnetic pulse forming.	**07**
	(b)	What do you mean by hybrid micromachining? Justify the idea of hybridization in micromachining through suitable example.	**07**
		OR	
Q.4	**(a)**	Enlist the properties that must satisfy by thin film in surface micromachines and discuss any one of them.	**07**
	(b)	Describe the working principle of micro-electrochemical machining process.	**07**
Q.5	**(a)**	Explain any one solid free form fabrication method.	**07**
	(b)	Write the difference between transmission electron microscope and scanning electron microscope.	**07**
		OR	
Q.5	**(a)**	Explain the surface machining and bulk machining through suitable examples.	**07**
	(b)	Explain the material removal mechanism in laser machining of non-metal with example.	**07**

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