

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER-1 (NEW) EXAMINATION – WINTER 2018

Subject Code: 3710807

Date: 04/01/2019

Subject Name: Advanced Materials Processing Techniques

Time: 02:30 PM To 05:00 PM

Total Marks: 70

Instructions:

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

- Q-1 (a) Mention the need and broad Classification of the non-conventional machining processes based on the nature of energy used for material removal. 07
- (b) Explain the material removal mechanism of electrochemical type non-traditional machining with neat sketch. 07
- Q-2 (a) Enlist the advantages of simulation of non-conventional processes. 07
- (b) Discuss the tool design criteria of electrochemical machining process. 07
- OR
- (b) Enlist the advantages and disadvantages of thermal type nonconventional machining processes. 07
- Q-3 (a) Explain the working principle of abrasive flow finishing process with sketch. 07
- (b) Enlist the applications of magnetic abrasive finishing process. 07
- OR
- Q-3 (a) Explain the working principle of magneto rheological abrasive finishing process with sketch. 07
- (b) Write the short note on electro hydraulic forming process. 07
- Q-4 (a) What is micromachining? Discuss how the micro-EDM differs from EDM? 07
- (b) Enlist the process parameters of powder rolling process and discuss the effect of individual parameter. 07
- OR
- Q-4 (a) Write the difference between hot and cold isostatic pressing with example. 07
- (b) What do you mean by hybrid micromachining? Justify the idea of hybridization in micromachining with suitable example. 07
- Q-5 (a) Explain in brief the principles of laser material removal with neat sketch. 07
- (b) Write the difference between transmission electron microscope and scanning electron microscope. 07
- OR
- Q-5 (a) Write the advantages and disadvantages of LIGA. 07
- (b) Enlist the industrial applications of laser in manufacturing. 07