

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VI • EXAMINATION – SUMMER • 2015

Subject Code: 163403

Date:08/05/2015

Subject Name: Advanced Manufacturing Processes

Time:10.30am-01.00pm

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) What is the difference between conventional and unconventional machining processes? What is the need for unconventional machining processes? **07**
- (b) Write the disadvantages of conventional machining processes? Classify the unconventional machining processes based on the energy used? **07**
- Q.2** (a) Explain the abrasive jet machining process in detail along with a neat sketch and label its parts? What are its advantages and disadvantages? **07**
- (b) What do you mean by material removal rate? What is its importance? What are the applications of abrasive jet machining process? **07**
- OR**
- (b) Explain the water jet machining process in detail along with a neat sketch and label its parts? What are its advantages and disadvantages? **07**
- Q.3** (a) What is the working principle of electric discharge machining (EDM)? What are its process variables? Explain with a neat sketch? **07**
- (b) What is the role of a dielectric fluid in EDM? What are the different fluids used as dielectric? What fluid properties are desired in EDM process? **07**
- OR**
- Q.3** (a) How is wire cut EDM different from EDM process? Explain the wire cut EDM process in detail along with a neat sketch? **07**
- (b) Give the advantages, limitations and applications of EDM process? **07**
- Q.4** (a) Explain chemical machining process in detail along with a neat sketch and label? What advantages it offers over other processes? **07**
- (b) What is the difference between chemical and electro chemical machining? What is the role of an etchant in chemical machining? What is a maskant? **07**
- OR**
- Q.4** (a) Explain the electro chemical machining process in detail along with a neat sketch? Also discuss its advantages **07**
- (b) Does hardness of the material play a role in material removal during chemical / electro chemical machining? What are the process variables in electro chemical machining? What are the disadvantages of electro chemical machining? **07**
- Q.5** (a) What is the principle of laser beam machining? Explain the process in detail? **07**
- (b) Explain plasma arc machining? What are its advantages & disadvantages? **07**
- OR**
- Q.5** (a) What is a CNC machine? What are the types of CNC? Write about its constructional features? **07**
- (b) Write the steps involved in CNC programming? What is computer aided part programming? What do you mean by canned cycles? **07**
