

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**M. E. - SEMESTER – I • EXAMINATION – WINTER • 2014**

**Subject code: 2715003**

**Date: 12-01-2015**

**Subject Name: Advanced Manufacturing Process**

**Time: 02:30 pm - 05:00 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) How non conventional machining differs from conventional machining? Give your comment. **07**
- (b) **Fill in the blanks.** **07**
- 1). Metal casting involves: Pouring \_\_\_\_\_ into a \_\_\_\_\_ having the Required shaped \_\_\_\_\_ and then allowing it to solidify.
  - 2). Cold forming is performed by heating the metal \_\_\_\_\_ its re-Crystalline temperature.
  - 3). \_\_\_\_\_ is the last operation before final finishing in the casting process.
  - 4). The AWJM uses \_\_\_\_\_ along with \_\_\_\_\_ water for cutting.
  - 5). The dielectric fluid used in EDM is \_\_\_\_\_.
  - 6). The \_\_\_\_\_ is more powerful amongst the other lasers and is Primarily used for cutting and profiling.
  - 7). The principal advanced machining methods used for machining brittle and Hard non-conducting materials are \_\_\_\_\_.
- Q.2** (a) Write the working principal of water jet machining process with neat sketch. **07**
- (b) Write the working principal of laser beam machining process with neat sketch and also discuss applications. **07**
- OR**
- (b) Explain the electron beam machining process with neat sketch and stated advantages. **07**
- Q.3** (a) Explain ceramic shell casting process and stated its advantages. **07**
- (b) What are the advantages of metal mold casting process over the sand mold casting process? **07**
- OR**
- Q.3** (a) Write the short note on vacuum mould casting process and its application. **07**
- (b) Write merit and demerit of advanced casting process over conventional casting process. **07**
- Q.4** (a) Enlist the advantages and disadvantages of electron beam welding process. **07**
- (b) Explain the working principal of laser beam welding process? **07**
- OR**
- Q.4** (a) With neat sketch and briefly explain ultrasonic welding process and its applications. **07**
- (b) Write and explain important process parameters of AJM and also effects of variables on MRR. **07**

- Q.5** (a) How HERF process is different from the conventional forming processes. **07**  
Explain its working principal.
- (b) Write short note on electromagnetic forming process. **07**
- OR**
- Q.5** (a) Enlist method of stretch forming processes. Explain its applicability, **07**  
advantages and limitations?
- (b) Explain electro hydraulic forming process and stated its advantages. **07**

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