

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- VIIth SEMESTER-EXAMINATION – MAY/JUNE- 2012

Subject code: 172003

Date: 09/06/2012

Subject Name: Manufacturing Technology II

Time: 02:30 pm – 05:00 pm

Total Marks: 70

Instructions:

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary and clearly mention the same.**
- 3. Draw NEAT schematic diagrams wherever necessary. Shabbily drawn diagrams may not be appreciated.**
- 4. Figures to the right indicate full marks.**

Q.1 (a) 1. Briefly explain the R-C circuit of Electro-Discharge Machining and discuss the limitations of it. **04**

2. Differentiate between Ultrasonic Machining and Electro-Chemical Machining. **03**

(b) 1. Explain dimensional control with suitable example/s to achieve successful workpiece control. **04**

2. Discuss the need of pattern allowances for a casting process. **03**

Q.2 (a) 1. Illustrate with neat diagrams various types of welding joints. **03**

2. Produce current v/s voltage characteristic curves of welding power source and bring out the significance of the same. **04**

(b) 1. Explain the line-standard and end-standard with suitable examples. **03**

2. Illustrate with neat diagram the principle of interferometry in conjunction with optical flat and monochromatic light source. **04**

OR

(b) 1. Differentiate between hole base system and shaft base system for gauging. **03**

2. Explain the procedure with sketches to measure angles less than 45 degree and greater than 45 degree using sine-bar and slip gauges. **04**

Q.3 (a) Describe various resistance welding processes with suitable diagrams. How pressure and current are varied in a resistance welding cycle? **07**

(b) Explain atomic hydrogen welding and stud welding. **07**

OR

Q.3 (a) Explain the working principle of LASER machining and bring out the various applications of LASER machining. **07**

(b) Describe various forging defects. **07**

Q.4 (a) Differentiate between cold working and hot working processes for metal forming and bring out the relative merits and demerits of them. **07**

(b) What are the different pattern materials used in investment casting? Compare the relative merits and demerits amongst them. Mention the advantage and limitations of investment casting. **07**

OR

Q.4 (a) Using neat schematic diagrams describe the importance of clearance between punch and die for punching operation on metallic sheet. Also bring out the significance of die relief angle (die clearance angle) for the same operation. **07**

- (b) Describe briefly the following properties of molding sand: **2+2+**
 Refractoriness, Collapsibility, Permeability, Thermal conductivity **2+1**
- Q.5** (a) 1. Uniform wall thickness on a deep drawn cup shaped component can be achieved by controlling the clearance between punch and die in deep drawing operation. – Evaluate the statement. **04**
 2. Differentiate between progressive die and combination die. **03**
- (b) Produce the nest of location system for a metallic strip arranged for blanking operation. Bring out the importance of fixed alternate locator in blanking operation. **07**
- OR**
- Q.5** (a) Bring out the significance of mechanical control for achieving better workpiece control with the help of suitable example and neat sketches. **07**
- (b) Evaluate the following statements:
1. When work piece control is lost the most expensive tooling and equipment are useless. **02**
 2. Dimensional control is given more preference over geometric control for work piece control. **02**
 3. Threads are not locators. **03**
