

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V • EXAMINATION – WINTER 2013

Subject Code: 152502**Date: 29-11-2013****Subject Name: Tool Design****Time: 10.30 am - 01.00 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) What is Tool Design? Explain the procedure of Tool Design. **07**
 (b) Explain geometry of different multipoint cutting tools. **07**
- Q.2** (a) Explain how the chips are formed in machining and how are they classified? **07**
 (b) Sketch a single point cutting tool and show on it the various tool elements and tool angles. **07**
- OR**
- (b) What do you understand by tool life? Explain various variables that play an important role in tool life. **07**
- Q.3** (a) Draw the Merchant Circle diagram and state its assumptions. **07**
 (b) Differentiate Orthogonal and Oblique cutting system with neat sketch. **07**
- OR**
- Q.3** (a) Write sources of heat generation in machining and its effects. **07**
 (b) List and explain the requirements of Cutting tool material. **07**
- Q.4** (a) What are the various ways in which presses can be classified? **07**
 (b) Differentiate Work shop gauge, Inspection gauge and Master gauge. **07**
- OR**
- Q.4** (a) Define “Interchangeability” and “Selective assembly” and discuss the importance of each. **07**
 (b) Draw a neat sketch of twist drill and state its following elements. **07**
 i) Helix angle, ii) Lip relief angle, iii) Margin, iv) Chisel edge.
- Q.5** (a) Explain the principle of location. Or “3-2-1” principle. **07**
 (b) What are the various location devices? Explain these with the aid of suitable sketches. **07**
- OR**
- Q.5** (a) Explain the various types of clamping devices with neat sketch. **07**
 (b) Design and draw ‘GO’ and ‘NO GO’ ends of a plug gauge to measure a hole of size $30.000 + 0.014$ mm adopting (i) Unilateral System and (ii) Bilateral System **07**
