Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 712802N **Date: 17-06-2014**

Subject Name: Machining Science

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)**	Explain ASA system of tool specification with figure.	**07**
	(b)	Explain the effect of temperature and strain rate on stress strain curve of a material.	**07**
Q.2	**(a)**	Give diagrammatic representation of milling cutter geometry.	**07**
	(b)	Explain slip line field method of shear angle measurement.	**07**
		OR	
	(b)	State different methods of force measurement and explain any one.	**07**
Q.3	**(a)**	Explain experimental method of chip tool interface temperature measurement.	**07**
	(b)	State various modes of tool wear and explain them.	**07**
		OR	
Q.3	**(a)**	State variables affecting tool life and explain the effect of cutting conditions on tool life.	**07**
	(b)	Determine an experimental method to find tool life.	**07**
Q.4	**(a)**	What is machinability? State various criterion for machinability index and explain any one.	**07**
	(b)	Derive an equation for optimization of cost based on maximization of production.	**07**
		OR	
Q.4	**(a)**	Explain restrictions imposed on use of optimum cutting speed.	**07**
	(b)	Derive an equation for chip length in grinding.	**07**
Q.5	**(a)**	Explain wear in grinding.	**07**
	(b)	Describe various methods to evaluate surface roughness.	**07**
		OR	
Q.5	**(a)**	How does cutting lubricant help in controlling temperature in metal cutting? What is the effect of cutting speed on the performance of cutting lubricant?	**07**
	(b)	Show the mode of plastic deformation by twinning with figure.	**07**

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