Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –I Examination Feb. - 2012

Subject code: 712802N **Date: 13/02/2012**
Subject Name: Machining Science
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)	Explain the geometry of milling cutter with neat sketch.	07
	(b)	Explain conversion from ASA to ORS.	07
Q.2	(a)	What is machinability? Explain factors affecting machinibility.	07
	(b)	What is average chip tool interface temperature? Explain with figure the thermocouple technique to measure the same.	07
		OR	
	(b)	Explain the restrictions imposed on use of economic cutting conditions.	07
Q.3	(a)	Derive an expression for finding specific energy in grinding.	07
	(b)	Explain criteria for selecting grinding wheel.	07
		OR	
	(a)	Derive an expression of flow due to conduction to know heat generation in metal cutting.	07
	(b)	Explain various methods of measuring surface roughness.	07
Q.4	(a)	What are the means of measuring cutting forces? Explain the requirements to be satisfied by a dynamometer.	07
	(b)	Explain the experimental method of determining tool life.	07
		OR	
Q.4	(a)	Explain role of friction in metal cutting.	07
	(b)	Derive equation of optimum cost based on maximization of production.	07
Q.5	(a)	Explain the measurement of shear angle based on slip line field method.	07
	(b)	What is 'Hi-E' region? T he tool life equation for a given operation is $VT^{0.4}=7$.What will be the change in tool life if speed is cut down to 60%?	07
		OR	
Q.5	(a)	Explain grinding wheel wear & also resharpening action.	07
	(b)	Explain force relation relationship in oblique cutting.	07

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