Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject code: 1725007 Date: 23-06-2014

Subject Name: Tool Design

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 the Different types of Cutting Tool materials.	**07**
	(b)	What is Cutting Tool Reconditioning? Explain their methods in Details.	**07**
Q.2	**(a)**	Explain the Design Procedure for Milling Cutters.	**07**
	(b)	The Feed of an 8-tooth face mill is 0.033cm per tooth at 200 rev./min. The material cut is 300 BHN steel. Depth of Cut is 0.32 cm and the width is 10 cm. Calculate the (a) H.P at the Cutter (b) H.P at the motor if the efficiency of the machine is 60%.	**07**
		OR	
	(b)	Describe general Problems of Cutting Tool Design & Explain the Chip Breakers with neat sketch.	**07**
Q.3	**(a)**	Explain types of Gauges & Give their Suitable Application materials.	**07**
	(b)	Find the ñGOò and ñNot GOò Gauge dimensions of a Plug gauge using Bilateral and Unilateral Systems and including wear allowance for gauging 75± 0.05 mm diameter holes.	**07**
		OR	
Q.3	**(a)**	Explain the basic requirements of work holding devices also Enlist Different types of Work holding Devices used in Industries.	**07**
	(b)	Explain the Tool Holding Methods for Numerical Controlled Machine Tools.	**07**
Q.4	**(a)**	Elaborate Design procedure of Drill Jigs.	**07**
	(b)	Explain the Principle of Extreme positions for Locating Devices.	**07**
		OR	
Q.4	**(a)**	Design Principles of Drill Bushings.	**07**
	(b)	Explain types of Drilling Jigs with neat sketch.	**07**
Q.5	**(a)**	What is Milling Fixture? Give their Classification.	**07**
	(b)	A Fixture is to cost Rs. 1000. The old fixture which originally cost Rs.700 has a scrap value of Rs. 250. The new fixture will save 10 paisa per piece and the percentage of overhead charged to this fixture is 30%. Taking I=8%,M=3%, T=12% and amortization =1½ years , Calculate the no. of pieces which must be produced to break even so that the fixture may pay for itself in one year.	**07**
		OR	
Q.5	**(a)**	Explain Boring & Broaching Fixtures.	**07**
	(b)	Explain Fixture Design for NC Controlled m/c tools.	**07**

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