Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VII • EXAMINATION – SUMMER 2013

Subject Code: X 71902 **Date: 14-05-2013**

Subject Name: Production Technology

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)**	1) Differentiate between single point cutting tool and multi-point cutting tool .	**03**
		2) Tool signature of single point cutting tool as per A.S.A.	**04**
	(b)	Explain the 3-2-1 principle of location to restrict the movement of job during machining to have accuracy .	**07**
Q.2	**(a)**	Explain briefly the working principle of USM process with neat sketch and state its applications and limitations.	**07**
	(b)	What are the desirable characteristics of cutting fluids and cutting Tool materials ?	**07**
		OR	
	(b)	Explain the types of tool wear and its mechanism.	**07**
Q.3	**(a)**	Differentiate between Jig and Fixture. Only sketch the different types of jig bushes.	**07**
	(b)	Differentiate between cast structure and fabricated structure of the machine tool.	**07**
		OR	
Q.3	**(a)**	Explain Working principle of a gear shaper with Kinematic diagram .State its advantages .	**07**
	(b)	Explain with neat sketch the concept of progressive die and compound die.	**07**
Q.4	**(a)**	Define: 1) Punching , 2) Blanking and 3) Lancing press operations with neat sketch.	**07**
	(b)	State the gear finishing operations. Explain any one with neat sketch.	**07**
		OR	
Q.4	**(a)**	Write the steps to manufacture the thread by rolling method. State its advantages.	**07**
	(b)	It is required to punch a hole of 10 mm diameter in a mile steel plate of 10 mm thick having shear strength of 600 N/mm^2 . Determine whether it is punched by punch material having compressive strength of 200 N/mm^2 , if not then what could be done to produce this hole ?	**07**
Q.5	**(a)**	Differentiate between capstan and turret lathe .	**07**
	(b)	Explain briefly R-C circuit used in EDM process and state how metal removal takes place in this process.	**07**
		OR	
Q.5	**(a)**	Deduce the expression of critical tool life for maximum out-put in terms of tool changing time and exponent n of taylor equation of tool life $VT^n=C$.	**07**
	(b)	Explain the principle of full-proofing in jig design with example.	**07**

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