Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2161909 Date:16/05/2019

Subject Name:Production Technology

Time:10:30 AM TO 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)**	When the use of positive rake angles and negative rake angles is recommended?	**03**
	(b)	Derive an expression of shear plane angle in single point cutting.	**04**
	(c)	What are the factors that affect tool life? Briefly describe their influence.	**07**
Q.2	**(a)**	Explain the characteristics of cutting fluid.	**03**
	(b)	Why heat is generated in cutting, label various heat zones in metal cutting.	**04**
	(c)	What are the different methods of gear manufacturing? List the methods and explain any one.	**07**
		OR	
	(c)	In an orthogonal cutting operation, the following data have been observed: Chip thickness:0.62 mm Feed: 0.2 mm/rev Rake angle: 15° Calculate: Cutting ratio, chip reduction co-efficient, shear angle, dynamic shear strain involved in the deformation process.	**07**
Q.3	**(a)**	What are the differences between Jigs and Fixtures?	**03**
	(b)	Explain construction and working of template jig.	**04**
	(c)	Explain 3-2-1 principle of location with figures.	**07**
		OR	
Q.3	**(a)**	Discuss characteristics of cutting tool material.	**03**
	(b)	List down various gear finishing process and explain principle of gear hobbing.	**04**
	(c)	Enlist various clamping devices used in jigs and fixtures. Explain any two with neat sketch.	**07**
Q.4	**(a)**	What is shear on a punch or die?	**03**
	(b)	Explain knockout with neat sketches.	**04**
	(c)	What are the various types of strippers? Explain their function with the help of suitable sketches.	**07**
		OR	
Q.4	**(a)**	Compare direct pilots with indirect pilots.	**03**
	(b)	What is meant by clearance? Why it is important in shearing operation?	**04**
	(c)	Classify the die associated with press work and explain about compound die and progressive die.	**07**

Q.5	**(a)**	Classify non conventional machining process.	**03**
	(b)	What are the types of electrolyte used in ECM? List the desirable properties of them.	**04**
	(c)	Explain with neat sketch working principle, process capabilities and limitation of water jet machining.	**07**

OR

Q.5	**(a)**	Using taylor equation and using n = 0.5, c = 400. Calculate the percentage increase in tool life when cutting speed is reduced 50%.	**03**
	(b)	What are the basic requirements for tool materials for EDM?	**04**
	(c)	Write short note on LBM.	**07**

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