

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER- VI EXAMINATION – SUMMER 2020****Subject Code: 2161909****Date: 28/10/2020****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.

		MARKS
<b>Q.1</b>	(a) Explain types of chips that occur in metal cutting.	<b>03</b>
	(b) Differentiate between orthogonal and oblique cutting?	<b>04</b>
	(c) Explain tool signature as per ASA and write importance of various angle in it.	<b>07</b>
<b>Q.2</b>	(a) How is the chip formed in metal cutting? Explain the terms shear plane and shear zone.	<b>03</b>
	(b) Prove that: $\tan \phi = r \cos \alpha / (1 - r \cos \alpha)$ .	<b>04</b>
	(c) Enumerate the factors affecting tool life. Briefly explain the effect of each factor.	<b>07</b>
<b>OR</b>		
	(c) A mild steel tubing of 50 mm outside diameter is turned on a lathe with cutting speed of 20 mpm (meter per min.) with a tool having rake angle of 35°. The tool is given a feed of 0.10 mm/rev. and it is found by dynamometer that the cutting force 250 Kg and feed force 100 Kg. Length of continuous chip in one revolution 80 mm and width of chip 2 mm. Calculate the co-efficient of friction, shear plane angle, velocity of chip along tool face, chip thickness and shear strength of work material.	<b>07</b>
<b>Q.3</b>	(a) What is cutting fluid? Explain with suitable example.	<b>03</b>
	(b) Explain Taylors tool life equation, $VT^n = \text{constant}$ .	<b>04</b>
	(c) Explain about Angle jig and box jig with neat sketch.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Draw and discuss Hinged-clamping device.	<b>03</b>
	(b) List out various types of drill bushes and its application.	<b>04</b>
	(c) Illustrate Locating 3-2-1 principle of Jigs and Fixtures.	<b>07</b>
<b>Q.4</b>	(a) Illustrate Strip layout related to press work.	<b>03</b>
	(b) How the Presses are classified? Sketch any one of it.	<b>04</b>
	(c) List the various thread manufacturing processes. Explain about thread rolling process.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Define the terms: Clearance, Piercing and Blanking.	<b>03</b>
	(b) List the various gear finishing processes and explain any two processes	<b>04</b>
	(c) What are the different methods of gear manufacturing? List the methods and explain any one.	<b>07</b>
<b>Q.5</b>	(a) Explain basic principle of EDM with neat sketch.	<b>03</b>

- (b) Differentiate between Dielectric fluid and Electrolytic Fluid used in machining process. **04**  
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- (c) Write the difference between AJM and AWJM processes from the viewpoint of working principle, application & limitations. **07**

**OR**

- Q.5** (a) Classify non-conventional machining processes. **03**
- (b) Illustrate USM machining process. **04**
- (c) Explain with suitable diagram working of electro discharge machine. State its advantage, disadvantage and application. **07**

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