

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
Q.1	(a) Explain types of chips that occur in metal cutting.	03
	(b) Differentiate between orthogonal and oblique cutting?	04
	(c) Explain tool signature as per ASA and write importance of various angle in it.	07
Q.2	(a) How is the chip formed in metal cutting? Explain the terms shear plane and shear zone.	03
	(b) Prove that: $\tan \phi = r \cos \alpha / (1 - r \cos \alpha)$.	04
	(c) Enumerate the factors affecting tool life. Briefly explain the effect of each factor.	07
OR		
	(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.	07
Q.3	(a) What is cutting fluid? Explain with suitable example.	03
	(b) Explain Taylors tool life equation, $VT^n = \text{constant}$.	04
	(c) Explain about Angle jig and box jig with neat sketch.	07
OR		
Q.3	(a) Draw and discuss Hinged-clamping device.	03
	(b) List out various types of drill bushes and its application.	04
	(c) Illustrate Locating 3-2-1 principle of Jigs and Fixtures.	07
Q.4	(a) Illustrate Strip layout related to press work.	03
	(b) How the Presses are classified? Sketch any one of it.	04
	(c) List the various thread manufacturing processes. Explain about thread rolling process.	07
OR		
Q.4	(a) Define the terms: Clearance, Piercing and Blanking.	03
	(b) List the various gear finishing processes and explain any two processes	04
	(c) What are the different methods of gear manufacturing? List the methods and explain any one.	07
Q.5	(a) Explain basic principle of EDM with neat sketch.	03

- (b) Differentiate between Die-electric fluid and Electrolyte Fluid used in machining process. **04**
- (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**
