

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) – EXAMINATION – SUMMER 2019****Subject Code: 2161504****Date: 18/05/2019****Subject Name: Metal Cutting & Advanced manufacturing processes****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) What is metal cutting?	03
	(b) Discuss basic elements of metal cutting.	04
	(c) State the reasons responsible for the development of advanced machining processes.	07
Q.2	(a) Define tool life.	03
	(b) State the factors which affect the tool life.	04
	(c) Explain open loop and closed loop numerical control system.	07
	OR	
	(c) Compare CNC and DNC system.	07
Q.3	(a) What is machinability?	03
	(b) Which are the main requirements of cutting tool material?	04
	(c) Explain the construction and use of Merchant's circle diagram.	07
	OR	
Q.3	(a) What is basic difference between jig and fixture?	03
	(b) State the factors which come in to play while evaluating machinability of any metal.	04
	(c) Discuss principles of location for jig and fixture design.	07
Q.4	(a) What is chip reduction coefficient?	03
	(b) What are the effects of cutting variables on the chip reduction coefficient?	04
	(c) Derive an expression for the optimum cutting speed at which the cost will be minimum.	07
	OR	
Q.4	(a) State the functions of electrolyte in Electro-chemical machining process.	03
	(b) State the applications of Electro-discharge machining process.	04
	(c) Discuss chip thickness ratio and its importance.	07
Q.5	(a) State the applications Electron beam machining process.	03
	(b) State advantages and limitations of Laser beam machining process.	04
	(c) Explain Ultrasonic machining (USM) process in detail.	07
	OR	
Q.5	(a) State the requirements of cutting fluid.	03
	(b) List various advanced cutting tool materials and explain any two.	04
	(c) Write note on Abrasive jet machining process.	07
