

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2023

Subject Code:2161909

Date:10-07-2023

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.
4. Simple and non-programmable scientific calculators are allowed

- Q. 1 (a) State the reasons for measuring temperature during machining 03
- (b) Explain the temperature measurement using a thermocouple. 04
- (c) Schematically draw a Merchant's Circle Diagram and state its uses, advantages and limitations. 07

- Q.2 (a) State the types of chips produced during machining. Explain the function of a chip breaker. 03
- (b) State the causes of formation of BUE. Explain the effects of BUE formation. 04
- (c) Differentiate between gear generation and gear shaping. Explain gear grinding with a neat sketch. 07

OR

- (c) State the difference between a right hand and left hand tool. 07
- While turning a metal rod of diameter 100 mm at speed of 625 rpm, feed of 0.4 mm/rev and 5 mm depth of cut by a carbide tool of geometry 0° , -12° , 6° , 6° , 30° , 60° , 0 (mm), the following observations were made; Tangential force=1200 N, axial force=400 N and chip thickness=1.0mm. Determine the yield shear strength of the workpiece material under the aforesaid condition.
- Q. 3 (a) State the advantages and limitations of ECM. 03
- (b) Compare EDM with ECM. 04
- (c) Explain the working principle of USM with a neat sketch. 07

OR

- Q. 3 (a) What are the ingredients of a ruby rod? What is the function of the impurity in the lasing process? 03
- (b) Explain the process of laser beam production. 04
- (c) What is the function of dielectric fluid in EDM? What is reverse polarity in EDM? In what circumstances reverse polarity is advisable? 07

- Q. 4 (a) State the difference between a jig and a fixture. 03
- (b) Draw a neat sketch of a strap clamp with all its features. State why the hill pin and front end of the strap are rounded. 04
- (c) Draw a neat sketch of a headed drill bush with all its features. State why the drill bush is ground at the inside and outside diameters. State the desirable material for a drill bush. 07

OR

Q. 4	(a)	Explain the advantage of replacing the conventional washer with a set of spherical washers with a strap clamp.	03
	(b)	Explain the use of nesting locators with neat sketches.	04
	(c)	Explain the use of a cam operated clamp with a neat sketch. Explain the significance of 3-2-1 principle of location.	07
Q. 5	(a)	Differentiate between blanking and piercing.	03
	(b)	Explain why more than one draw is required to draw a cup. What are the factors on which the number of draws required during a deep drawing operation to get the final product depend?	04
	(c)	Explain with neat sketches, the methods of mounting the punch.	07
OR			
Q. 5	(a)	Differentiate between compound and progressive die.	03
	(b)	Explain how clearance is provided on die or punch during blanking and piercing operations and why.	04
	(b)	Compare the advantages and limitations of hydraulic drives against mechanical drives for presses. Explain the function of a pilot.	07

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