

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (OLD) EXAMINATION – SUMMER 2019****Subject Code: 181903****Date: 13/05/2019****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) Explain chip removal mechanism. What is the difference between oblique machining and orthogonal machining? **07**
- (b) In an orthogonal cutting operation, the tool has a rake angle = 15° . The chip thickness before the cut = 0.30 mm and the cut yields a deformed chip thickness = 0.65 mm. Calculate (a) the shear plane angle and (b) the shear strain for the operation. What is a tool-chip thermocouple? **07**
- Q.2** (a) Name and briefly describe the types of chips that occur in metal cutting. **07**
- (b) Enlist force acting on the chip in orthogonal cutting. Explain the characteristics of different types of tool wear. **07**
- OR**
- (b) What is tool life? State factors influencing on it in detail. **07**
- Q.3** (a) What are the different types of thread manufacturing processes? Explain with neat sketch. **07**
- (b) Differentiate between gear forming and gear generating methods. What are advantages & limitations of gear Hobbing process? **07**
- OR**
- Q.3** (a) List various principles of location and explain the 3-2-1 Principal of Location with neat sketches. **07**
- (b) How the Presses are classified? Explain the methods of reducing the force requirement in presswork operation. **07**
- Q.4** (a) Sketch a two way clamp. Describe the design principles for drilling jigs. **07**
- (b) What is Setup layout? Explain in detail with suitable diagram. **07**
- OR**
- Q.4** (a) What is Clearance in Press Tool Design? Explain Compound and Combination die with the help of suitable sketch. **07**
- (b) What is the difference between a capstan & turret lathe? Describe in brief with the help of suitable sketch. **07**
- Q.5** (a) Classify various unconventional machining processes. Also, give its advantage over Conventional machining processes. **07**
- (b) Explain working principle of LBM Process. State its important applications in practice. **07**
- OR**
- Q.5** (a) Explain the different machine tool structures. **07**
- (b) Differentiate EDM and Wire EDM. Explain Characteristic of dielectric fluid used in EDM process. **07**
