

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER– VIII(OLD) • EXAMINATION – WINTER 2017

Subject Code: 182101**Date: 07-11-2017****Subject Name: Metal Working Processes****Time: 02:30 pm to 05:00 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 the residual stresses in metal working processes. **07**
 (b) Classify different metal working processes and differentiate between the processes based on temperature. **07**
- Q.2** (a) What are different rolling variables? Discuss them. **07**
 (b) Discuss rolling defect with their causes and remedies. **07**
- OR**
- (b) Derive geometrical relationship of calculating projected length of arc of contact and relation of coefficient of friction and angle of bite. **07**
- Q.3** (a) Write note on electric discharge forming and optical pyrometer. **07**
 (b) Write note on High energy rate forming. **07**
- OR**
- Q.3** (a) What is extrusion? Explain different extrusion process and explain role of lubricant. **07**
 (b) Draw engineering stress strain diagram for ductile and brittle material with suitable example and define ductility, toughness, stiffness and hardness. **07**
- Q.4** (a) Explain briefly Hydrostatic extrusion with neat sketch. **07**
 (b) Write note on wire drawing process. **07**
- OR**
- Q.4** (a) Explain the process of recovery, recrystallization and grain growth after cold working. **07**
 (b) What is the role of flow stress in design extrusion die? Illustrate with figure. **07**
- Q.5** (a) Give functions of flash in forging and differentiate between close and open die forging. **07**
 (b) Explain following sheet metal working processes: i. Shearing ii. Deep drawing **07**
- OR**
- Q.5** (a) In terms of rolling explain following: Bloom, Billet, Slab, Plate, Sheet, Strip **07**
 (b) Explain different forging operations with neat sketch. **07**
