

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII EXAMINATION – SUMMER 2016****Subject Code:182101****Date:10/05/2016****Subject Name: Metal Working 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.

- Q.1** (a) Explain the process of recovery, recrystallization and grain growth after cold working. **07**  
(b) Discuss the residual stresses in metal working processes. **07**
- Q.2** (a) List sheet metal working operations and briefly discuss deep drawing and blanking. **07**  
(b) What is meant by extrusion? Explain different types of extrusion process and role of lubricant. **07**
- OR**
- (b) Classify different metal working processes and differentiate between the processes based on temperature. **07**
- Q.3** (a) What are different rolling variables? Discuss them. **07**  
(b) List the factors that determine temperature of work-piece in metal working and get equation for it. **07**
- OR**
- Q.3** (a) Write note on electric discharge forming and optical pyrometer. **07**  
(b) Derive equation for total extrusion force using extrusion process analysis. **07**
- Q.4** (a) Discuss rolling defect with their causes and remedies. **07**  
(b) Enlist forging defects and give their causes and remedies. **07**
- OR**
- Q.4** (a) Write note on workability of metal. **07**  
(b) Define forging and compare open die and close die forging. Explain different forging operations with neat sketch. **07**
- Q.5** (a) What do you mean by rolling? Explain rolling mill with neat sketch. **07**  
(b) List variables and defects in wire drawing and discuss them in brief. **07**
- OR**
- Q.5** (a) In terms of rolling explain following: Bloom, Billet, Slab, Plate, Sheet, Strip and Angle of Bite. **07**  
(b) Derive equation for forging load by plane strain forging analysis. **07**

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