

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII (OLD) EXAMINATION – WINTER 2018****Subject Code: 182101****Date: 19/11/2018****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) Classify and differentiate metal working processes. **07**  
(b) Compare open die and close die forging. Also explain functions of flash in close die forging. **07**
- Q.2** (a) Discuss recovery, recrystallization and grain growth after cold working. **07**  
(b) Derive forging load equation by plane strain forging analysis. **07**
- OR**
- (b) For rolling explain: Bloom, Billet, Slab, Plate, Sheet, Strip and Angle of Bite. **07**
- Q.3** (a) Discuss defects in rolling process with their causes and remedies. **07**  
(b) Enlist forging defects and give their causes and remedies. **07**
- OR**
- Q.3** (a) Discuss rolling variables. **07**  
(b) What is extrusion? Explain different types of extrusion process and role of lubricant. **07**
- Q.4** (a) Discuss the residual stresses in metal working processes. **07**  
(b) List the factors that determine temperature of work-piece in metal working and get equation for it. **07**
- OR**
- Q.4** (a) List sheet metal working operations and briefly discuss shearing and embossing. **07**  
(b) Explain different forging operations with neat sketch. **07**
- Q.5** (a) Write note on optical pyrometer. **07**  
(b) Derive equation for total extrusion force using extrusion process analysis. **07**
- OR**
- Q.5** (a) With neat sketch explain different rolling mill. **07**  
(b) Write note on wire drawing. **07**

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