

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII • EXAMINATION – SUMMER • 2015****Subject Code: 182101****Date:15/05/2015****Subject Name: Metal Working Processes****Time:10.30AM-01.00PM****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) Define rolling and explain neutral point and angle of bite. Draw different rolling mills with neat sketch and label it. **07**
- (b) Differentiate between hot and cold working processes. **07**
- Q.2** (a) Draw engineering stress strain diagram for ductile and brittle material with suitable example and define ductility, toughness, stiffness and hardness. **07**
- (b) List rolling variables and discuss them. **07**
- OR**
- (b) Explain workability. **07**
- Q.3** (a) Discuss annealing of cold worked metal. **07**
- (b) Write note on Residual stresses. **07**
- OR**
- Q.3** (a) Define forging and compare open die and close die forging. **07**
- (b) Explain different forging operations with neat sketch. **07**
- Q.4** (a) Derive equation of forging load by plane strain forging analysis. **07**
- (b) Derive geometrical relationship of calculating projected length of arc of contact and relation of coefficient of friction and angle of bite. **07**
- OR**
- Q.4** (a) Write note on optical pyrometer. **07**
- (b) List variables in wire drawing and discuss them. **07**
- Q.5** (a) What is extrusion? Explain different extrusion process and explain role of lubricant. **07**
- (b) Discuss rolling defects with their causes and remedies. **07**
- OR**
- Q.5** (a) Write note on High Energy Rate Forming (HERF). **07**
- (b) List sheet metal working processes and explain shearing and deep drawing. **07**
