

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VIII EXAMINATION – WINTER 2015

Subject Code:182101**Date:09/12/2015****Subject Name: Metal Working Processes****Time: 2:30pm to 5:00pm****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) Compare Hot Working & cold working processes with advantages and limitations. **07**
 (b) Briefly explain recrystallisation & Grain Growth with reference to Metal working process. **07**
- Q.2** (a) Explain in detail various metallurgical variables of forging process. **07**
 (b) Classify the forging processes, also list different forging operation with sketch. **07**
- OR**
- (b) Discuss causes and remedies of forging defects. **07**
- Q.3** (a) Derive equation to determine length of arc of contact and relation between angle of bite and frictional coefficient for rolling. **07**
 (b) Classify the different types of rolling mills. Explain any one with sketch in detail. **07**
- OR**
- Q.3** (a) If contact angle in rolling is 17° , diameter of roll is 1000 mm than calculate maximum reduction possible by rolling, length of arc of contact. Also if radial force is 140 N than calculate frictional force. **07**
 (b) Discuss rolling variables in detail. **07**
- Q.4** (a) List extrusion process variables. Discuss the term 'total extrusion pressure' and derive equation for the same. **07**
 (b) Write short note on wire drawing process & its defect. **07**
- OR**
- Q.4** (a) List type of extrusion. Explain hydrostatic extrusion with sketch. **07**
 (b) Explain deformation zone in rolling with sketch. **07**
- Q.5** (a) Explain any five sheet metal working operations indicating with sketch. **07**
 (b) Write short note on Electric discharge forming. **07**
- OR**
- Q.5** (a) List different temperature measuring instruments. Explain use of thermocouple for temperature measurement in metal working processes. **07**
 (b) Write short note on annealing of cold worked metal forming. **07**
