

GUJARAT TECHNOLOGICAL UNIVERSITY**BE SEM-VIII Examination May 2012****Subject code: 182101****Subject Name: Metal working Processes****Date: 10/05/2012****Time: 10.30 am – 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) Classify metal working processes with respect to the working temperature. Give suitable examples for each. **07**
- (b) Discuss in detail the defects caused by the forging operations with neat sketch. **07**
- Q.2** (a) Describe in detail the metal working process carried out at room temperature. Explain its effects on the properties like strength & ductility. **07**
- (b) Explain the term ‘Residual stresses’. How its produced in a metal? Describe the treatment to be given to eliminate these stresses **07**
- OR**
- (b) Explain the phenomenon of recovery, re-crystallization, & grain growth with neat diagrams. **07**
- Q.3** (a) Explain the rolling process. Classify the different types of rolling mills & give the reason for its complex design. **07**
- (b) Discussed the problems faced & the defects caused in the rolling operation with neat sketch. **07**
- OR**
- Q.3** (a) Explain in detail hot rolling & cold rolling processes with their applications & merits. **07**
- (b) Explain in detail various metallurgical variables of forging process. **07**
- Q.4** (a) List the basic requirements of lubricants used in Extrusion & wire drawing processes. What are the types of lubricants used in wire drawing process. **07**
- (b) Classify extrusion process & explain each with neat sketch. Explain the Impact extrusion process. **07**
- OR**
- Q.4** (a) (i) What is extrusion ratio? How it affects the extrusion process. **07**
(ii) What are the extrusion process variables? Explain in detail.
- (b) Derive the formula for Extrusion pressure. **07**
- Q.5** (a) Draw a neat sketch of wire drawing die & label its important parameters. Define each parameter. **07**
- (b) (i) What are the wire drawing variables? Define each **07**
(ii) What are the defects occur in wire drawing process.
- OR**
- Q.5** (a) What is optical pyrometer? Explain its construction & operation in detail. **07**

(b) Write short notes on ANY TWO

07

1. Spinning operation
2. Thermocouples.
3. Impact extrusion
4. Closed Die & open Die forging
