

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code: 2172108****Date: 16/05/2019****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) What is warm working? Give its advantages. **03**  
(b) What is angle of bite? Relate angle of bite to coefficient of friction. **04**  
(c) With causes and remedies discuss different rolling defects. **07**

- Q.2** (a) With neat sketch show engineering and true stress strain diagram. **03**  
(b) What is flash in forging? Briefly explain its role and function. **04**  
(c) What are different extrusion processes? With neat sketch brief them. **07**

**OR**

- (c) Classify metal working processes and briefly explain them. **07**  
**Q.3** (a) What is FEM? Can FEM is used to simulate metal forming? **03**  
(b) What are different die materials and role of lubricant in metal forming? **04**  
(c) Compare close die and open die forging. **07**

**OR**

- Q.3** (a) What is extrusion ratio? Explain. **03**  
(b) What are different forging operations? With neat sketch show them. **04**  
(c) What are different rolling variables? Explain them. **07**  
**Q.4** (a) What property material should possess for wire drawing? With sketch show wire drawing operation. **03**  
(b) What is embossing and coining? Explain briefly. **04**  
(c) Discuss shearing and deep drawing processes in sheet metal working. **07**

**OR**

- Q.4** (a) What are different forging defects? For any one give causes and remedies. **03**  
(b) Briefly discuss defects in extrusion. **04**  
(c) Derive equation for extrusion pressure. **07**  
**Q.5** (a) Derive geometric relation for length of arc of contact ( $L_p$ ) in rolling. **03**  
(b) What are variables of wire drawing? Explain briefly. **04**  
(c) What are different possible defects in wire drawing operation? Provide possible causes and remedies. **07**

**OR**

- Q.5** (a) What is neutral point and roll flattening? **03**  
(b) What is extrusion ration and process variables in extrusion. **04**  
(c) Discuss possible rolling defects with their causes and remedies. **07**

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