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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech IV Year I Semester Supplementary Examinations February-2022**

**METAL FORMING PROCESS**

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 a Define engineering stress and true stress 6M  
b Compare engineering strain and true strain. 6M

**OR**

- 2 Develop an expression for three dimensional stress analyses. 12M

**UNIT-II**

- 3 Classify the types of rolling mills with the necessary sketches. 12M

**OR**

- 4 Develop an expression for force and power requirement in rolling operation. 12M

**UNIT-III**

- 5 a Summarize the characteristics of extrusion process. 6M  
b Compare forward and backward extrusion. 6M

**OR**

- 6 a Summarize the characteristics of drawing process 5M  
b Construct the sketch for measuring the degree of drawing with expressions. 7M

**UNIT-IV**

- 7 Explain the following sheet metal working shearing operations performed in a workshop with neat sketch. 12M

- i) Blanking  
ii) Piercing  
iii) Nibbling  
iv) Notching

**OR**

- 8 a Explain the concept of spring back in sheet metal bending with a suitable sketch. 6M  
b Estimate the shear force and work required for shearing a hole of rectangular cross section steel sheet of 100X50 mm with thickness of 4 mm and the penetration required is 20%. Shear strength of material is given as 400 MPa. 6M

**UNIT-V**

- 9 Explain briefly the blow moulding process with the help of suitable figures. Mention its applications and advantages. 12M

**OR**

- 10 Discuss in detail about the compression moulding process with a neat sketch. Mention its applications and advantages. 12M

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