

Roll No.

Total No. of Pages : 02

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M.Tech.(PE) (Sem.-1)

METAL FORMING

Subject Code : PE-503

M.Code : 39004

Date of Examination : 10-01-2023

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

- 1. Attempt any FIVE questions out of EIGHT questions.**
 - 2. Each question carries TWENTY marks.**
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1. a) What is true stress and true strain? Explain true stress strain curves.
b) Explain in detail about Tresca maximum shear strain energy criterion.
 2. Discuss the various defects in rolling, forging and extrusion and wire drawing along with remedial measures.
 3. a) Discuss the various parameters that affect the process of extrusion.
b) Explain various methods of tube drawing.
 4. a) Describe general classification of rolling mills.
b) Explain in detail various factors which affect rolling force.
 5. a) Discuss the different variables that affect the deep drawing process.
b) Derive an expression for punch load for a circular and rectangular punch, assuming all the required data.
 6. a) Explain the mechanism of lubrication in metal forming.
b) Discuss in brief the various types of lubricants used in rolling and cold drawing.

7. a) Is the value of Poisson's ratio different for hot and cold working. Justify your answer.
- b) In wire drawing operation the diameter of steel wire is reduced from 10mm to 8 mm. The mean flow stress of the material is 400MPa. Calculate the ideal force required for drawing, ignoring friction.
8. **Write short notes on :**
- a) Ironing
- b) Defects in deep drawing
- c) Strain hardening function
- d) Heat generation in metal forming process.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.