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Total No. of Questions : 08] [Total No. of Pages : 02

M.Tech.

METAL FORMING

SUBJECT CODE : PE - 503

Paper ID : [E0443]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours **Maximum Marks : 100**

Instruction to Candidates:

1) Attempt any **Five** questions.
2) **All** questions carry equal marks

Q1) (a) Discuss the procedure for selection of stress strain curves for cold and hot working.

(b) Discuss the Tresca maximum shear strain energy criteria and its significance in metal forming applications.

Q2) (a) What is meant by plastic incompressibility? Discuss its significance.

(b) Discuss the various factors and variables which affect the wire drawing process.

Q3) (a) Compare and contrast among various methods available for tube drawing.

(b) Describe the function of lubricant in metal forming processes. Discuss the mechanism and principle of lubrication.

Q4) (a) Discuss the various defects observed in deep drawing process. What are the main causes of these defects and how can these be eliminated.

(b) Discuss the principle of working, applications and benefits of boundary and extreme pressure lubricants.

Q5) (a) Obtain an expression for radial drawing stress in a deep drawing operation. Make suitable assumptions.

(b) Discuss the difference in the processes Ironing and Wrinkling.

Q6) (a) Discuss the prediction of roll pressure for flat strip rolling in the leading and lagging zones.

(b) Give a general classification of rolling mills.

Q7) (a) Discuss the various factors which affect the rolling force.

(b) Explain with a neat labeled diagram, what is meant by Hydrodynamic lubrication.

Q8) Write short notes on the following:

(a) Heat generation and heat transfer in metal forming processes.

(b) Prediction of working loads in Strip Drawing.