8. Explain the follow (20)

(a) Elasto-Plastic ximations

(b) Stiffness matri

(c) Material Integ Schemes

(d) Steady state s n for drawing

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22224

M.Tech. 1st Semester.-Mechanical Engg. (Machine Design) Examination– December, 2016

METAL FORMING ANALYSIS

Paper : M-807-A

Time : 3 hours ***Max. Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after the examination.

Note : Attempt any **five** questions. All questions carry equal marks.

1. (a) Explain work hardening and Anisotropy in Yielding in detail. (10)

(b) Explain the yield criteria for ductile material with the help of a proper graphical representation. (10)

2. Explain the follow (20)

(a) Slip line field t

(b) Stress Strain tions in elastic and plastic deform

3. (a) The conventic stress-strain curve is lower than the stress-strain curve in tension, while opposite is correct in compression. (10)

(b) Discuss how t rature and strain rate affects metal v g processes. (10)

4. (a) Explain and se the technological aspects of v drawing process in detail. (10)

(b) Explain the fo g : (10)

(i) Stretch for

(ii) Deep draw

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5. (a) Discuss various lubrication methods in hot and cold working processes. (10)

(b) Explain the process of extrusion and its types. Explain how are seamless pipes produced with the help of extrusion process ? (10)

6. (a) Describe the implicit and explicit formulations in detail. (10)

(b) Differentiate between Lagrangian and Eularian approaches in relation to finite element methods. (10)

7. (a) Discuss various forming defects in products and their critical effects along with their remedies. (10)

(b) Write a short note on the use of international standards in metal forming problem solutions and system design. (10)