Code: 9D15205

M.Tech II Semester Supplementary Examinations February 2018

THEORY OF PLASTICITY

(Machine Design)

(For students admitted in 2012, 2013, 2014, 2015 & 2016 only)

Time: 3 hours Max. Marks: 60

Answer any FIVE questions

All questions carry equal marks

*****

1 Discuss about Mohr's representation of stress in 2&3 dimensions.

2 Explain about strain displacement relationships.

3 Explain about incremental stress strain relations.

4 A thick cylinder of internal radius 15 cm and external radius 25 cm is subjected to an internal pressure 'p' MPa. If the yield stress for the cylinder material is 220 N/mm^2, determine: (i) The pressure at which the cylinder will start yielding just at the inner radius. (ii) The stresses in the cylinder when the cylinder has a plastic front radius of 20 cm. (iii) The stresses when the whole of the cylinder has yielded. Assume Von-Mises yield condition and a state of plane strain.

5 Discuss about Drucker Prager material and general isotropic material.

6 Explain about deformation theory of plasticity.

7 Discuss about numerical algorithms for solving non linear equations.

8 Explain about upper and lower bound theorems.

*****