Code No: RT22013 **R13** SET - 1

II B. Tech II Semester Supplementary Examinations, Dec/Jan-2015-16
STRENGTH OF MATERIALS - II
(Civil Engineering)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **THREE** Questions from **Part-B**

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PART –A

1. a) Define the term obliquity.
   b) What are the springs in series and in parallel?
   c) Write the crippling load by Rankine's formula. Mention the each term in the formula.
   d) What is the difference between dam and a retaining wall?
   e) Define unsymmetrical bending and shear centre.
   f) What is a frame? State the difference between perfect frame and imperfect frame?

PART -B

2. a) Derive the normal stress, tangential stress and resultant stress of two mutually perpendicular principal stresses of unequal intensities by Mohr's method.
   b) Define and explain maximum strain energy theory.

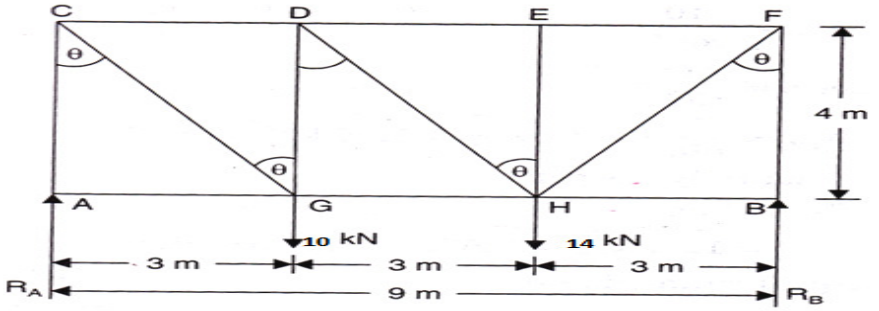
3. Derive the Torsion equation $T/J = \tau/R = C\theta/L$

4. a) Derive the equation for the Euler's crippling load for a column when both ends fixed.
   b) What is a slenderness ratio?

5. A column is rectangular in cross section 300 x 400 mm .The column carries an eccentric loading of 360kN on one diagonal at a distance of quarter diagonal length from a corner. Calculate the stresses at all four corners. Also draw stress distribution diagram for any side.

6. Determine the stresses and deflection for the mid section of the I beam by unsymmetrical method. Also identify the position of the neutral axis

7. Find the reactions in the members by method of joints.



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