Code No: RT22013 R13 **SET - 41**

II B. Tech II Semester Supplementary Examinations, Nov/Dec-2016
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 [22M]

1. a) **Define the terms principal planes and principal stresses.**
   b) **What is a spring? Name two important types of springs.**
   c) **What are the limitations of Euler's theory**
   d) **What is the middle quarter rule for circular section**
   e) **Differentiate between symmetrical and unsymmetrical bendin**
   f) **What are the assumptions made in the analysis of a simple trus**

PART –B [3×16=48M]

2. a) **Derive an expression for a member subjected to direct stress in one pla**
   b) **Define and explain the maximum shear strain theory of fail**

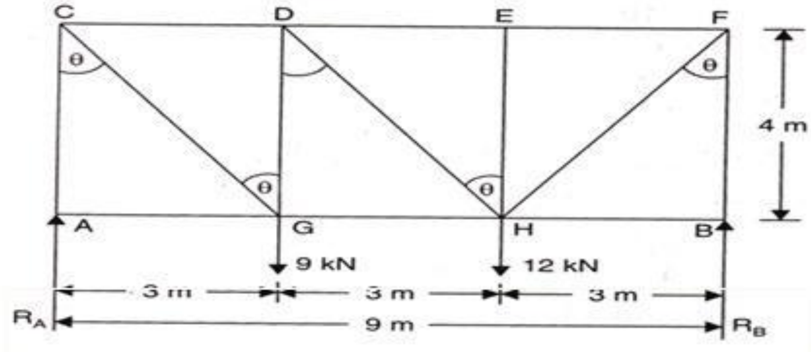
3. **Derive the expression for the maximum bending stress developed in the leaf spring and also the central deflection of a leaf spring.**

4. a) **Derive the equation for the Euler's crippling load for a column with both ends hinged.**
   b) **What is Prof. Perry's formula?**

5. a) **A hollow rectangular column is having external and internadimensions as 140cm deep x 100 cm wide and 100 cm deep x 60cm wide respectively. A vertical load of 220kN is transmitted in the vertical plane bisecting 140 cm side at an eccentricity of 10cm from the geometric axis of the section. Calculate the maximum and minimum stresses in the section.**
   b) **What do you mean by direct stress and bending stress?**

6. **Determine the stresses and deflection at the midpoint of a channel section by unsymmetrical method. Also identify the position of the neutral axis.**

7. **Find the reactions in the members by method of joint**



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