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

II B. Tech II Semester Supplementary Examinations, November-2017
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) What are the different types of failures?
   b) What are the assumptions made in the theory of pure torsion?
   c) Define a strut and a column.
   d) Draw the core of a rectangular section of 200mm x 300mm.
   e) Define shear centre. What is the difference of shear centre?
   f) What are the differences between method of joints and method of sections?

PART –B

2. a) Derive an expression for a member subjected to stresses on an oblique plane.
   b) Define and explain the maximum principle strain theory of failure.

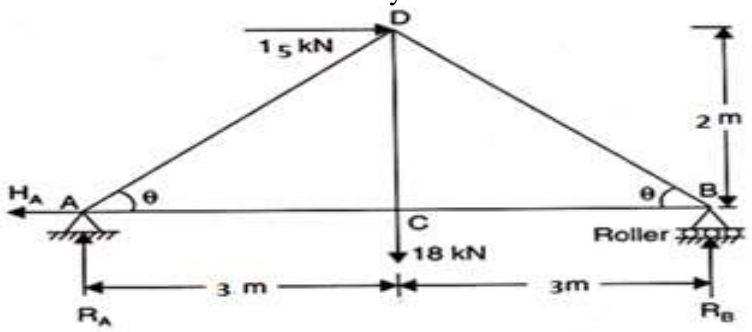
3. A hollow shaft is to transmit 338.5 kW at 100 r.p.m. If the shear stress is not to exceed 75 N/mm^2 and the internal diameter is 0.6 times the external diameter, find the external and internal diameters assuming the maximum torque 1.3 times the mean.

4. a) Derive the equation for the Euler's crippling load for a column with one end fixed and the other end pinned.
   b) What is the Secant formula?

5. A column is rectangular in cross section 400 x 500 mm .The column carries an eccentric loading of 460kN 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 L beam by Un symmetrical method. Also identify the position of the neutral axis.

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