Code No: RT21355   **R13**   SET - 1

II B. Tech I Semester Supplementary Examinations, May - 2019
PROPERTIES AND STRENGTH OF MATERIALS
(Agricultural 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) Explain the sources of Stones and Natural bed of Stones

   b) Explain the different characteristics and uses of Glass

   c) What are the characteristic and uses of cast iron?

   d) What are the types of column failure?

   e) Give Rakine' s formula and its advantages

   f) Explain about the Stability of dams

PART -B

2. What is the significance of bonding in brick work? Differentiate between English Bond and Double Flemish bond with sketches

3. Explain in detail the causes of decay of wood work and their preservation

4. State the Euler's assumption in column theory. Derive a relation for the Euler's crippling load for a columns with both ends hinged.

5. Find the ratio of buckling strength of a solid column to that of a hollow column of the same material and having the same cross sectional area. The internal diameter of the hollow column is half of its external diameter. Both the columns are hinged and the same length.

6. A propped cantilever beam *AB* is subjected to a concentrated load of 60 kN at 3m from end *A* as shown in Fig. Draw the bending moment and shear force diagrams by the force method. Assume that the flexural rigidity of the beam, *EI* to be constant throughout.

Figure 1

7. a) Explain claypeyron's theorem of three moments and Application of Clayperon's theorem
   b) Explain the principle of Super position theorem