

Code No: R1621354

R16**SET - 1****II B. Tech I Semester Regular Examinations, October/November - 2017****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 **FOUR** Questions from **Part-B****PART -A**

1. a) Give the classification of Rocks. 2M
- b) What are the constituents of concrete? 2M
- c) Distinguish between Wrought Iron and Cast Iron. 2M
- d) Write down the equation of relationship between Young's Modulus, Bulk modulus and Modulus of Rigidity 3M
- e) Define Euler's column theory. 2M
- f) Explain the stresses acting at the base of a dam. 3M

PART -B

2. Explain the properties of the following materials and discuss how they can be used for construction of farm structures with few examples 14M
(i) Stones (ii) Bricks (iii) Cement (iv) Mortar
3. a) Write different types of concrete and their use. 7M
- b) What are the sources of sand? List out the properties and uses of sand. 7M
4. Name any four numbers of non-ferrous alloys and bring out their properties and uses in manufacturing of farm implements and equipment. 14M
5. Derive the relation between slope, deflection and radius of curvature. 14M
6. Derive the Rankine's formula for long columns. 14M
7. a) What are the different types of joints? What is the efficiency of a riveted joint? 7M
- b) Write the steps involved in moment distribution method. 7M