KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food . Engg) Degree Programme 2015 Admission
IInd Semester Final Examination- June – July 2016

Cat. No: Fden 1201   Marks: 50.00

Title: **Engineering Properties of Biological Materials (2+1)**   Time: 2 hours

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I Fill up the blanks   (10 x 1 =10)

1. Shear strain is also called as _____.
2. For a linear stress _____ strain relationship, the ratio is expressed as _____
3. In the force deformation relationship curve, increase in deformation with a decrease or no change in force is known as _____.
4. Stress relaxation deals with decay of stress at _____
5. Firmness of fruits relates with force and _____
6. Name the important electrical properties of the food materials.
7. What is rheology?
8. Dielectric properties are _____ and _____
9. _____ law states that stress is directly proportional to strain within the elastic limit.
10. Pure plastic behavior of a material can be represented by a _____ mechanical model.

II Write short notes ANY FIVE   (5 x 2 =10)

1. Distinguish between storage modular and loss modular.
2. Distinguish between diffusivity and conductivity.
3. How to determine the angle of internal friction?
4. How to measure the drag coefficient?
5. Explain physical characteristics of food grains.
6. Differentiate Newtonian and Non-Newtonian fluid.
7. Differentiate bulk density and true density.

III. Explain ANY FIVE of the following   (5 x 4 =20)

1. Explain the visco elastic properties of food materials.
2. Explain in concept of energy absorption from high frequency electric field.
3. Explain the principles of transient heat flow.
4. Explain rheological models.
5. What are time independent fluids? Explain
6. Explain working of rotational viscometers.
7. Discuss aerodynamic properties.

IV. Write essay on ANY ONE   (1 x 10=10)

1. Explain various thermal properties and its application.
2. Derive the Maxwell model and illustrate the applications of the Maxwell model in food properties.

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