KERALA AGRICULTURAL UNIVERSITY
B.Tech. (Ag. Engg.) 2017 Admission
I Semester Final Examination-January-2018

Fape.1101 **Engineering Properties of Agricultural Produce (1+1)**

Marks: 50
Time: 2 hours

I **Fill in the blanks:** **(10x1=10)**

1 Those properties having to do with the behavior of the material under applied force are known as----------
2 The shape which is formed when an ellipse rotates about its major axis like a lemon is known as----------
3 The angle of repose is generally----------than the angle of internal friction for grain of approximately at the same moisture content.
4 ----------is used as a solvent to measure the specific gravity of seed and grains in pycnometer.
5 Stoke's law is valid only when Reynold's number is ----------
6 The fluids which show a decrease in shear stress with time of shear at a given shear rate are called----------
7 The work required to cause the rupture in the material is called----------
8 Air comparison pycnometer is used to measure----------
9 The unit of viscosity is----------in SI system.
10 In the relation $C_d = c/Re$, the constant 'c' is----------for the sphere settling in a fluid.

II **Write Short notes on any FIVE of the following** **(5x2=10)**

1 Angle of repose
2 Stress relaxation
3 Pseudoplastic fluid
4 Thermal Diffusivity
5 Rolling resistance
6 Electrical Conductivity
7 Degree of elasticity

III **Answer any FIVE of the following.** **(5x4=20)**

1 Briefly explain any two visoelastic models.
2 Derive the expression for terminal velocity of a spherical particle.
3 What are the different definitions of sphericity?
4 Draw and explain a possible force- deformation curve for an agricultural product.
5 Briefly explain two methods for measurement of specific heat.
6 What are the methods to find out the fruit surface area?
7 Briefly explain a method for measurement of electrical conductivity of foods.

IV **Write an essay on any ONE of the following** **(1x10=10)**

1 Importance of physical characteristics of agricultural produce for designing of processing machines.
2 Application of terminal velocity in handling and processing of agricultural produce.

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