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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