

KERALA AGRICULTURAL UNIVERSITY

B.Tech.(Food Engg.) 2016 Admission

II Semester Final Examination – August - 2017

Cat. No: Fden. 1201

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

Marks: 50

Time : 2 hours

I. Choose the correct answer:

(10 x 1=10)

- One of the following is not a physical property of food materials.
a) Porosity b) Specific gravity c) Specific heat d) Frontal area
- Mechanical damage to seeds and grains which occurs during.
a) Harvesting b) Threshing c) Handling d) all the above
- The thermal processing may include.
a) Heating b) cooling c) drying d) all the above
- Heat or cooling of agricultural products may be accomplished by the method of.
a) conduction b) convection c) radiation d) all the above
- A scalper is used for.
a) grading the material b) rough separator c) removing of stones
d) fine separation of material
- Which solvent is used to measure the specific gravity of seed and grains in pycnometer?
a) Benzene b) n-hexane c) toluene d) water
- Which method is not used to measure the specific gravity of fruits and vegetables?
a) Pycnometer method b) Platform balance c) Specific gravity gradient tube.
d) Specific gravity balance
- Henderson equation is very much popular and based on the .
a) Potential field theory b) Capillary condensation theory c) Gibb's adsorption equation
d) Multilayer molecular adsorption theory
- Ideal plastic behaviour is represented by.
a) Newtonian liquid b) St. venant body c) Hookean body d) All the above
- Ideal viscous behaviour is observed in.
a) Newtonian liquid b) St. venant body c) Hookean body d) All the above

II. Write short notes on ANY FIVE:

(5x 2=10)

- Coefficient of friction.
- Porosity.
- Visco elasticity.
- Terminal velocity.
- Angle of internal friction.
- Dielectric constant.
- Specific heat.

III Explain the difference between the following (ANY FIVE):

(5 x 4=20)

- Roundness and Sphericity.
- Lift force and drag force.
- Bulk density and true density.
- Thermal conductivity and thermal diffusivity.
- Stress and strain.
- Firmness and hardness.
- Steady state and unsteady state of heat flow in biological materials.

IV. Explain in detail on (any ONE):

(1 x 10=10)

- The thermal properties of biological materials with suitable examples.
- The Rheological properties of biological materials with suitable examples.