KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food . Engg) Degree Programme 2014 Admission
IV th Semester Final Examination- June – July 2016

Cat. No: Fden.2205   Marks: 50.00
Title: Food Process Engineering (2+1)   Time: 2 hours

I Define the following   (10 x 1 =10)

1. Thermal Death Time
2. Fermentation
3. Freezing point
4. Dehydration
5. Water activity
6. Canning
7. Texture of food
8. Sterilization
9. Pneumatic conveying
10. Case hardening

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

1. Relationship between water activity and equilibrium moisture content
2. Blanching of food
3. 'D' value
4. Properties of ionizing radiation
5. Mixing index
6. Concentration of food
7. Write the equations for calculating wet and dry basis moisture contents of foods. Also give the conservation formulae for conservation from one basis to the other.

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

1. Explain Maxwell and Kelvin model.
2. A drum dryer has a production rate of 20 kg/h of final product .If feed has a solid content of 12% and if the moisture content of final product is 4% (wb) ,calculate feed rate.
3. What is ohmic heating? Enumerate its applications.
4. Write notes on different types of sterilization methods.
5. At 121^0C process temperature, "eight log reduction" of *clostridium botulinum* having ' Z ' value of 9 ^{0} C needs a process time of 1.5 minutes .Calculate the process time for the same degree of reduction at 130^0C temperature.
6. Write a detailed note on dielectric properties of food and their importance.
7. Explain different methods of size reduction

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

1. a) Describe different drying methods suitable for drying food product.

    b) Two tonnes of paddy initially at 22 % (wb) moisture content are to be dried to 13 % (db) moisture content .Calculate the quantum of water to be removed from the paddy during the drying process and what is the final wet and bone dry weight of paddy?

2. a) Explain working principle of microwave heating of food with neat sketch .Discuss about its applications in food industries

    b) Orange juice has 16% total solids initially .If the concentration of total solids of the juice is to be increased to 40% ,calculate the fraction of initial water to be removed from the juice.

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