KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg.) 2013 Admission
VIIth Semester Final Examination - January 2017

Cat. No: Phpt. 4107   Marks: 50.00
Title: Diary and Food Engineering (2+1)   Time: 2 hours

I State True or False   (10x1=10)
1. Milk is colloidal in nature.
2. Indian cheese is a heat-acid coagulated product of milk.
3. The steam economy for a triple effect evaporator is two.
4. Wet bulb temperature is one of the important factors in a spray drying system.
5. Thermal death kinetic of microorganism follows 4th order reaction kinetics.
6. The decimal reduction time is independent of process temperature.
7. Van't Hoff and Gibb's models are used to calculate osmotic pressure of a solution
8. Pasteurization of milk is carried out to inactivate the heat resistant microorganisms.
9. National Diary Development Board is the largest milk cooperative sector in the world.
10. High viscosity fluids are good for spray drying

II Write any FIVE of the following   (5x2=10)
1. Give a flow chart for butter making
2. Explain any one method used for cream separation from milk containing high fat.
3. Write expressions for constant rate filtration and constant pressure filtration
4. Explain reverse osmosis process
5. Explain any three factors which can enhance the extraction efficiency.
6. Explain supercritical fluid extraction.
7. Explain vacuum distillation

III Short Essays Any FIVE   (5x4=20)
1. Write any four defects in butter, their causes and prevention
2. Explain whey protein denaturation and its effect on milk.
3. Explain hydro-lock sterilizer with a neat diagram
4. Explain Combiblock aseptic system with a neat diagram
5. Derive an expression for decimal reduction time. Define the decimal reduction time.
6. During making corn flake by using a drum dryer, the diameter of the drum is 60cm with length of 150cm. The drum rotates at 180 rpm and the pressure on the knife blade is $3.35*10^3$ N per meter belt length. If the coefficient of friction is 0.2, find out the power required by the drum.
7. Find out the settling velocity of a particle in a fluid medium.

IV Write Essay on any ONE   (1x10=10)
1. Write assumptions made in derivation of Plank's equation of freezing for a solid food. Derive the Plank's equation to calculate the freezing time of solid food.
2. Classify the pressure driven membrane processing. Describe any three of them in detail.

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