



KERALA AGRICULTURAL UNIVERSITY

B.Tech.(Food Engg) 2016 Admission

IV Semester Final Examination-July 2018

Fden.2205

Food Process Engineering (2+1)

Marks: 50

Time:2 hours

I Match the following

(10x1=10)

- | | |
|---------------------|------------------------------|
| 1 Roller mill | a) Centrifugal force |
| 2 Cyclone separator | b) Impact and Shear |
| 3 Size reduction | c) Calandria |
| 4 Heat exchanger | d) Compression and Shear |
| 5 Ball mill | e) Cutting/Crushing/Grinding |

State True or False

- 6 Water activity of pure water is less than one.
- 7 Ultrafiltration process cannot be used for clarification of vegetable juices.
- 8 Fineness modulus indicates distribution of fine & coarse particles in any sample.
- 9 Gelatinized starch is more easily hydrolyzed by amylolytic enzymes.
- 10 Non-enzymatic browning of citrus juice concentrates follows first order kinetics.

II Write short notes/answers etc on ANY FIVE

(5x2=10)

- 1 Condition for applying Stokes law and Reynolds number.
- 2 Write Rittinger's, Bond's and Kick's laws of size reduction.
- 3 Water activity.
- 4 Principle of microwave heating.
- 5 D value.
- 6 Blanching.
- 7 High pressure processing.

P.T.O

III Answer any FIVE of the following.

(5x4=20)

- 1 Freeze drying.
- 2 Aseptic processing.
- 3 Ohmic heating of foods.
- 4 Canning of foods.
- 5 Construction and working of different size reduction equipments.
- 6 A spherical food product is being frozen in an air-blast freezer. The initial product temperature is 10°C and the cold air -40°C . The product has a 7 cm diameter with density of 1000 kg/m^3 , the initial freezing temperature is -1.25°C , the thermal conductivity of the frozen product is 1.2 W/(m K) , the latent heat of fusion is 250 kJ/kg and convective heat transfer coefficient is $50\text{ W/m}^2\text{K}$. Compute the freezing time.
- 7 Role of water activity in food preservation.

IV Write an essay on any ONE of the following

(1x10=10)

- 1 Differentiate the concept of drying and dehydration and Explain the working principle of different types of dryers.
- 2 Explain in detail about extrusion cooking with a neat sketch of extruder.
