

Reg.No. _____



Karunya UNIVERSITY

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

End Semester Examination – Nov/Dec – 2016

Code : 14FP3019

Sub. Name : Advances in Food Process Engineering

Semester : 2016-17 ODD

Duration : 3hrs

Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Explain the method of freeze concentration with a neat sketch	CO 1	15
	b.	The activation energy for vitamin C thermal destruction for 11.2° Brixgrapefruit juice was calculated to be equal to 4.98 kcal/mol based on k values between 61°C and 96°C. Calculate the z value for vitamin C thermal destruction in grapefruit juice.	CO 1	05
(OR)				
2.	a.	Food with an initial moisture content of 380% (dry-weight basis) is poured into 0.4 cm layers in a tray placed in a freeze drier operating at 40 Pa. It is to be dried to 10% moisture (dry-weight basis) at a maximum surface temperature of 55°C. Assuming that the pressure at the ice front remains constant at 78 Pa, calculate (a) the drying time and (b) the drying time if the layer of food is increased to 0.8 cm and dried under similar conditions. (Additional data: the dried food has a thermal conductivity of 0.03 W/mK, a density of 470 kg /m ³ , a permeability of 2.4 x 10 ⁻⁸ kg/s and the latent heat of sublimation is 2.95 x 10 ³ kJ/ kg.)	CO 1	05
	b.	Describe the various types of freeze driers with a neat sketch	CO 1	15
3.	a.	Give a detailed account on microwave processing of foods	CO 2	20
(OR)				
4.	a.	Categories the membrane separation process and membrane modules	CO 1	20
5.	a.	Explain in detail about the food irradiation methods and mention the changes that occurs in the foods during irradiation.	CO 2	20
(OR)				
6.	a.	Give an account of super critical fluid extraction of food materials.	CO 1	20
7.	a.	Express your idea about aseptic processing of foods	CO 2	20
(OR)				
8.	a.	Discuss the application of biosensors and biocatalysts in food	CO 3	20
<u>Compulsory:</u>				
9.	a.	Explain in detail about various non thermal methods of food processing methods	CO 3	20

ALL THE BEST