

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E.

Branch: Biotechnology

Course Code: 22BT6PEAFC

Course: Advances in Food Chemistry

Semester: VI

Duration: 3 hrs.

Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.			UNIT-I	CO	PO	Marks
	1	a)	With an emphasis on the chemical nature of carbohydrates, elaborate why carbohydrates are the most abundant food component.	CO 1	PO1	7
		b)	Based on their specific functions in the food products, classify food additives. Cite examples.	CO 1	PO1	5
		c)	There is a direct relationship between water stability and food perishability. Highlight this by giving an account of Aw and ERH in food spoilage and storage.	CO 1	PO1	8
			OR			
	2	a)	With increased awareness on chemical preservatives and their harmful effects, more consumers are moving towards natural/organic food preservatives. Elaborate on the types of natural preservatives available with a focus on their efficiency.	CO 1	PO1	6
		b)	Bring about a comparison between Kjeldahl method and Dumas method for protein analysis in food.	CO 1	PO1	8
		c)	How is HPLC used in the food industry? How is it helpful in resorting different monosaccharides?	CO 1	PO1	6
			UNIT-II			
	3	a)	What are the physical properties furnished by proteins to food products?	CO 2	PO1	5
		b)	How do different enzymes affect the chemical nature of food? Give examples.	CO 2	PO1	7
		c)	"Vitamins are extensively used in food processing". Elaborate the properties of vitamins which justifies this statement.	CO 2	PO5	8
			OR			
	4	a)	What are the effects of lack of dietary fibre in humans? Give examples of soluble and insoluble fibres.	CO 2	PO5	6
		b)	What kind of damage is caused by rancidity? Classify the types of rancidity.	CO 2	PO5	6

	c)	Elaborate the various factors which effect rate of reaction of an enzyme.	CO 2	PO5	8
		UNIT-III			
5	a)	Consider the fat present in cacao products. What is the most accurate way to determine this fat content?	CO 2	PO1	5
	b)	All cereal grains have a fairly similar structure and nutritive value. Which process ensures that cereal grains can be consumed in a variety of ways?	CO 2	PO1	7
	c)	Differentiate between caramelization and Maillard reaction. What is the role of sugar alcohols? Elucidate with the help of examples.	CO 2	PO2	8
		UNIT-IV			
6	a)	A variety of chemical and physiological changes occur in fruits and vegetables during drying. Taking flavonoids as an example, highlight the changes during drying.	CO 3	PO12	4
	b)	What are the three main stages of food freezing? Elaborate on the sensory quality and texture of frozen foods.	CO 3	PO10	8
	c)	What are the effects of blanching? Write the significance of hydroxymethylfurfural (HMF) in the cooking process.	CO 3	PO10	8
		UNIT-V			
7	a)	Which foods are a good source of anthocyanins? Why anthocyanin is called a “bioactive substance”?	CO 3	PO9	6
	b)	Discuss the bioactive substances which are of animal origin and mention their importance.	CO 3	PO9	6
	c)	Food packaging technology is being revolutionized with the help of nanotechnology. Discuss the chemistry behind this type of food packaging.	CO 3	PO10	8
