Total number of printed pages: **3** **Programme (D)/3rd /DFET303**

2022

FOOD PRODUCT TECHNOLOGY-I

Full Marks : 100

Time : Three hours

The figures in the margin indicate full marks for the questions.

*Answer **any five** questions.*

1.	a)	What are the different changes that occur during the processing of fruits and vegetables	5
	b)	What are the major byproducts of fruit and vegetable processing. Give any three uses of fruit and vegetable byproducts.	5
	c)	What types of containers are used for canning? What is lacquering in canning containers and what are the two types of lacquers?	2+5 = 7
	d)	Give any three types of spoilage of canned foods	3
2.	a)	What is thermal processing of foods?	2
	b)	Explain the two main differences between pasteurization and sterilization. Give three advantages observed in pasteurized and sterilized food products.	5+3 = 8
	c)	Explain the immersion freezing method. Name three refrigerants or cooling medium used in immersion freezing. Cooling medium in immersion freezing should be nontoxic (true/false)	2+3+1=6
	d)	What is Individual quick-freezing phenomenon? In which freezing technique, individual quick-freezing phenomenon is mostly observed? Give two advantages of individual quick freezing of foods.	2+1+1=4
3.	a)	As per FSSAI standards, what is the minimum total soluble solids percentage required in following products i) Jam ii) Tomato sauce iii) Fruit cordial iv) Fruit squash v) Marmalade	1×5 = 5
	b)	What are the major ingredients used in the preparation of jams and jellies. Write the role of each ingredient in the preparation process.	2+6=8
	c)	Name two products preserved using salt. Give the process flow chart for the preparation of ready to serve beverages	2+5=7

4.	a)	Write the name of two gluten proteins and two non-gluten proteins found in wheat.		2+2=4
	b)	Write the names of two vitamins found in whole wheat.		2
	c)	Describe the tempering process of wheat. Why is it necessary to do tempering?		3+2=5
	d)	Write the functions of vibrating screen, aspirator, magnetic separator and washer stoner used during wheat milling process.		1+1+1+1=4
	e)	Fill in the blanks		1×5 = 5
		i)	……. is an oligosaccharide present in wheat responsible for lowering in postprandial blood glucose.	
		ii)	Maize contains around …….. protein.	
		iii)	Maize protein is deficient in amino acids like tryptophan and ……..	
		iv)	Maize is a good source of …….. pigment.	
		v)	Maize is used to produce ready to eat breakfast cereals named ……	
5.	a)	Describe the process of dry milling and wet milling of maize.		5+5=10
	b)	What is malting? Discuss the process of malting. Write any two uses of barley malt.		2+6+2=10
6.	a)	Choose the correct answer		1×5 = 5
		i)	Pulses are rich in **lysine/cystein** amino acid.	
		ii)	Legumes are better than cereals as a source of **essential amino acids/essential fatty acids.**	
		iii)	Pulse proteins are chiefly **globulins/gliadins.**	
		iv)	Pulse proteins are deficient in methionine and **phenylalanine/tryptophan.**	
		v)	Pulse lipid contains high amount of **polyunsaturated/monounsaturated fatty acids.**	
	b)	Briefly explain any two toxic constituents present in pulses.		5
	c)	Discuss the various methods used in processing of pulses.		10
7.	a)	Fill in the blanks		1×5 = 5
		i)	Solvent extraction of oil is employed for the oilseeds containing less than …….. % oil.	
		ii)	The purpose of ……. of oilseeds is to facilitate oil recovery.	
		iii)	Oilseed cakes that remain after oil extraction is used for cattle feed	

			as it contains high …….. content.	
		iv)	Gossypol is a toxin pigment found in …… endosperm.	
		v)	…… oil contains high percentage of lauric acid.	
	b)	List down the major sources of oil in India.		5
	c)	Explain the steps involved in vegetable oil processing (production of RBD oil).		10