

2023-24
B.TECH. (VII SEMESTER) EXAMINATION
FOOD TECHNOLOGY
DAIRY PROCESS TECHNOLOGY
FTC4010

Maximum Marks: 60**Credits: 03****Duration: Two Hours***Answer all the questions.*

Q No	Question	Marks	CO covered
1(a)	What is the white revolution? Discuss the status of dairy in India.	7	[CO-1]
OR			
1(a')	Explain any two of the following term in relevance to the physical properties of milk (i) Colour (ii) Viscosity (iii) Surface tension	7	[CO-1]
1(b)	Explain in brief about the causes of variation in milk composition.	8	[CO-1]
OR			
1(b')	What are the changes that occur in milk during storage?	8	[CO-1]
2(a)	Explain the general processing steps involved in the production of whole milk powder.	7.5	[CO-2]
2(b)	Discuss the following in Milk Processing (a) Pasteurization (b) Homogenization (c) Standardization	7.5	[CO-2]
OR			
2(b')	35000 kg of whole milk containing 4% fat, is to be separated in a 6 hour period into skimmed milk with 0.45% fat and cream with 45% fat. What are the flow rates of the two output streams from a centrifuge which are accomplished.	7.5	[CO-2]
3(a)	Explain the general processing steps in the processing of butter.	10	[CO-3]

contd...2.

OR

- 3(a') Differentiate with the help of a general process flowsheet between Ripened and Unripened cheese. 10 [CO-3]
- 3(b) Explain the Baudouin test for the adulteration of ghee. 5 [CO-3]
- 4(a) Briefly describe Acidophilus milk along with its advantages. 7 [CO-4]
- 4(b) Explain, with a suitable example, the general processing steps involved in the manufacturing of ice cream 8 [CO-4]
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2023-24
B.TECH. (WINTER SEMESTER) EXAMINATION
FOOD TECHNOLOGY
BAKING, CONFECTIONARY AND EXTRUDED PRODUCT TECHNOLOGY
FTC 4030

Maximum Marks: 60

Credits: 04

Duration: Two Hours

Answer all the questions. Choices are given within the questions.

Q No.	Question	Marks	CO covered
Q. 1a	Describe the status of bakery industry in India and discuss the role of 'gluten' in making of bakery products.	5	[CO-01]
OR			
Q. 1a'	Discuss the role of following ingredients in baking industry: a) Flour b) Shortening c) Leavening agent	5	[CO-01]
Q. 1b	Discuss the following aspects of cake production: a) Types of cake b) Defects found in cake and their preventive measures	5	[CO-01]
Q. 1c	Describe the production process of puff pastry.	5	[CO-01]
OR			
Q. 1c'	Discuss the sponge dough and straight dough processes of bread manufacture.	5	[CO-01]
Q. 2a	Mention and describe in detail any two confectionery product.	7.5	[CO-02]
Q. 2b	What are the different types of sugar used in confectionery? Discuss the production process of sugar.	7.5	[CO-02]
OR			
Q. 2b'	Describe the process of cocoa powder and cocoa butter production from cocoa beans. Also discuss the chocolate production from cocoa.	7.5	[CO-02]
Q. 3a	List and discuss the components of a food extruder.	5	[CO-03]
OR			
Q. 3a'	Discuss the functioning of a typical food extruder with appropriate	5	[CO-03]

Contd.... 2.

diagrams.

- Q. 3b** Discuss the effect of following operational parameters on expansion: 5 [CO-03]
- a) Extrusion temperature
 - b) Screw speed
 - c) Length to diameter ratio
- Q. 3c** Discuss the effects of extrusion on nutritional qualities of extruded foods under the following heads: 5 [CO-03]
- a) Starch
 - b) Protein
- Q. 4a** What are the PFA rules followed for bakery raw materials and products? 5 [CO-04]
- OR**
- Q. 4a'** What are the advantages of extrusion technology over conventional food processing technologies? 5 [CO-04]
- Q. 4b** Discuss the need of sanitation and personal hygiene in the food and baking industry. 5 [CO-04]
- Q. 4c** Discuss the different losses that occur during baking. 5 [CO-04]
- OR**
- Q. 4c'** Discuss the characteristics of a wafer and the steps involved in its production. 5 [CO-04]

2023-24
B.TECH. (VII SEMESTER) EXAMINATION
FOOD TECHNOLOGY
FOOD LAW SAFETY STANDARD AND REGULATIONS
FTC4040

Maximum Marks: 60

Credits: 03

Duration: Two Hours

Answer all the questions.

Q No	Question	Marks	CO covered
1(a)	Discuss the difference between Quality Assurance and Quality Control.	7	[CO-1]
OR			
1(a')	What do you mean by Quality plan? Discuss the need for a quality plan.	7	[CO-1]
1(b)	Enumerate the different stages of TQM with the help of a diagram. What are the requirements for the preparation of TQM?	8	[CO-1]
OR			
1(b')	What is meant by food sampling? Enumerate the purpose of food sampling.	8	[CO-1]
2(a)	With the help of a suitable example, differentiate between the Multiple sample difference test and the Composite scoring test.	7.5	[CO-2]
2(b)	Discuss the measures which should be taken before judging the quality for sensory evaluation.	7.5	[CO-2]
OR			
2(b')	Enumerate the requirement of a laboratory setup for sensory evaluation.	7.5	[CO-2]
3(a)	For the given set of data, plot a chart for sampling by variation and find out upper and lower critical limits.	7.5	[CO-3]

Batch (\bar{x})	Sample 1	Sample 2	Sample 3	Sample 4
1	248.12	248.15	249.45	249.67
2	251.13	250.21	249.11	247.88

Contd....2

3	250.4	251.17	250.01	250.01
4	250.12	251.9	250.13	251.93
5	248.56	248.90	248.2	248.98
6	248.8	248.45	248.9	250.16

OR

3(a') Discuss in brief about the following **7.5 [CO-3]**

- (a) AGMARK
- (b) BIS
- (c) CAC

3(b) Differentiate between PFA and FSSAI **7.5 [CO-3]**

4(a) Discuss in brief about the following **7 [CO-4]**

- (a) CIP
- (b) COP

4(b) Define GHP and explain different hygienic design factors that must be considered at all stages of plant development. **8 [CO-4]**

OR

Batch (Q)	Sample 1	Sample 2	Sample 3	Sample 4
1	248.12	248.12	249.42	249.67
2	251.13	250.21	249.11	247.88

2023-24
B.TECH. (7th SEMESTER) EXAMINATION
FOOD TECHNOLOGY
SELECTED TOPICS FOR FOOD PROCESSING
FTE4020

Maximum Marks: 60

Credits: 03

Duration: Two Hours

Answer all the questions.

Q No.	Question	Marks	CO covered
1. a)	What do you mean by sanitation? Discuss the different sources of contamination.	(7.5)	[CO-1]
1. b)	What is FDA? Discuss its key responsibilities.	(7.5)	[CO-1]
OR			
1. b')	What is GMP? What are the GMP requirements for plant construction and design?	(7.5)	[CO-1]
2. a)	Define the following terms and also give their examples: i. Functional foods ii. Nutraceuticals iii. ω -3 fatty acids	(7.5)	[CO-2]
OR			
2. a')	Describe the bioactive peptides present in milk and eggs and mention their health benefits.	(7.5)	[CO-2]
2. b)	Differentiate between probiotics and prebiotics? What are their functions in our body? Explain with examples.	(7.5)	[CO-2]
3. a)	Explain the designing and formulation of functional foods.	(07)	[CO-3]
3. b)	Discuss the food requirements for sportspersons.	(08)	[CO-3]
OR			
3. b')	Describe the important considerations in production of space foods.	(08)	[CO-3]
4. a)	Describe the role of functional foods in management of cardiovascular diseases.	(08)	[CO-3]

contd... 2.

OR

4. a') How are functional foods helpful in management of diabetes? (08) [CO-4]
4. b) What do you mean by geriatric foods? What are the considerations in preparation of geriatric foods? (07) [CO-4]

Question



2023-24

**B.Tech. (ODD SEMESTER) EXAMINATION
(MECHANICAL ENGINEERING/FOOD TECHNOLOGY)
REFRIGERATION & COLD CHAIN
(MEE4231/MEA3011)**

Max Marks: 60

CREDITS:04/03

Duration: 2 Hours

Note: 1. Answer all the questions.**2. Assume suitable data if missing. Notations used have their usual meaning.****3. Marks allotted to each question and course outcome (CO) covered are indicated against each question.****4. Use of Refrigeration table and chart is allowed.**

Q.No.	Questions	COs	M.M.
1(a)	Determine the power consumption of a domestic refrigerator if its refrigerating capacity is 0.13TR. It is operating in an ambient of 40°C. Temperature in the freezer must be maintained at -15°C. COP of the system is half the Carnot COP.	[CO1]	[04]
1(b)	Discuss the effect of superheating on the performance of a vapour compression refrigeration system.	[CO1]	[04]
1(c)	Discuss multi-stage vapour compression refrigeration systems with flash gas removal with the help of a schematic and p-h plot.	[CO1]	[07]
OR			
1(c')	A simple vapour compression refrigeration system using Freon 22 operates on simple saturation cycle with the Refrigerating capacity 15 TR, Condensing temperature 40°C and Evaporating temperature 6°C. Calculate: (a) Refrigerant circulation rate in kg/s, (b) Power required by the compressor in kW, (c) Coefficient of performance and (d) Volume flow rate of the refrigerant at compressor suction.	[CO1]	[07]
2(a)	Explain the working of a Regenerative system for aircraft refrigeration with the help of a schematic and T-s plot.	[CO2]	[07]
OR			
2(a')	An air-cooling system for a jet plane cockpit operates on the simple cycle. The cockpit is to be maintained at 25°C. The ambient air pressure and temperature are 0.35 bar and -15°C respectively. The pressure ratio of the jet compressor is 3. The plane speed is 1200 km/hr. The pressure of the air leaving the cooling turbine is 1.06 bar and that in the cockpit is 1.01 bar. The cockpit cooling load is 60 kW. Calculate (a) Mass flow rate of the air circulated, (b) Net power delivered by the engine to the refrigeration unit and (c) COP of the system.	[CO2]	[07]
2(c)	With the help of schematic diagram, explain the working principle of water-lithium bromide vapour absorption refrigeration system.	[CO2]	[08]

Contd... 20

3(a) Why a hermetic type compressor is used in domestic refrigeration systems? [CO3] [04]

3(b) Compare the merits and demerits of water cooled and air-cooled condensers used in refrigeration systems? [CO3] [05]

OR

3(b') Discuss the advantages, disadvantages and applications of a Thermostatic expansion valve used in refrigeration systems. [CO3] [05]

3(c) Explain the ODP and GWP of a refrigerant. Discuss the alternative refrigerants used in present refrigeration systems? [CO3] [06]

4 (a) Explain the importance of cold storages in food industry. [CO4] [04]

OR

4 (a') Discuss the cold chain and cold chain management. [CO4] [04]

4 (b) Explain the function of a Eutectic Plate and discuss its application. [CO4] [04]

OR

4 (b') Discuss chilling injury and its symptoms. [CO4] [04]

4 (c) What is dry ice? Explain its manufacture with the help of p-h diagram. [CO4] [07]

OR