

M.Tech Food Technology
Semester I Examination, 2023
Paper Title: Food Processing and Preservation
Paper Code: MFTC – 102

Time: 3 Hours

Max Marks 75

Attempt all questions. Marks are mentioned against each question.

1. Specify the correct answer

(1 x 15)

- (a) Which of the following cannot be used solely as food preservation technique
- | | |
|-----------------|---------------------------|
| (i) irradiation | (ii) canning |
| (iii) blanching | (iv) ultra heat treatment |
- (b) Which of the following is not a non-thermal food preservation technique?
- | | |
|-------------------|-------------------------------|
| (i) retorting | (ii) high pressure processing |
| (iii) cold plasma | (iv) pulsed electric field |
- (c) A process which combines a series of unit operations including mixing, cooking, kneading, shearing, shaping and forming in one single process
- | | |
|-----------------------|------------------------------------|
| (i) Hurdle technology | (ii) ultrasonication |
| (iii) Extrusion | (iv) modified atmosphere packaging |
- (d) Which of the following is not an example of modified atmosphere packaging,
- | | |
|-------------------------|-----------------------|
| (i) CAS | (ii) passive MAP |
| (iii) nitrogen flushing | (iv) active packaging |
- (e) In freezing preservation, the faster rate of freezing results into formation of
- | | |
|---------------------------|-----------------------|
| (i) larger crystals | (ii) smaller crystals |
| (iii) very large crystals | (iv) no crystal |

Fill in the blanks

- (f) _____ is known as the Father of canning.
- (g) The characteristic golden brown colour associated with baked foods is due to _____ and _____.
- (h) The temperature at which a crystal of an individual solute exists in equilibrium with the unfrozen liquor and ice is its _____.
- (i) _____ and _____ are two frequencies that have been set aside for exclusive use of microwave heating applications.
- (j) _____ and _____ are unit operations to alter eating quality of food.

.State true or false

- (k) Combination of different preservation techniques to achieve multi-target and reliable preservation effects is called as hurdle technology.
- (l) Examples of hurdles in food processing are proteins, carbohydrates, fats and minerals.
- (m) The supercritical region for carbon dioxide is when it is above the critical pressure of 74 bar and the critical temperature of 31 °C.

- (n) Processing technology in which an AC current is passed through a food sample which leads to generate internal energy and heating patterns is termed as infra red heating.
- (o) High pressure processing is also termed as pascalization.

2. Answer any three of the following (5 x 3)

- (a) Discuss the function of Mega Food Parks in India.
- (b) Briefly discuss the principles of food preservation.
- (c) Discuss the various sectors under the food processing industry in India.
- (d) Briefly discuss the PMFME scheme.
- (e) Discuss the scope of food processing in India.

3. Answer any three of the following (5 x 3)

- (a) Differentiate among blanching, pasteurization and sterilization.
- (b) Discuss the principle of extrusion cooking.
- (c) Freshly harvested cherries from Shimla need to be transported to Bengaluru. What technology do you suggest can be helpful in keeping the freshness of cherries until it reaches the destination/consumer.
- (d) Discuss the applications of dielectric heating in foods.
- (e) Justify the statement, "Flash freezing is a better than slow freezing for foods".

4. Answer any three of the following (5 x 3)

- (a) What are the applications of membrane processing in the food industry?
- (b) Discuss the principle of ultrasonication/ultrasound processing.
- (c) Briefly explain the freezing curve.
- (d) Discuss the application of nanotechnology in the food industry.
- (e) Differentiate between reverse osmosis and microfiltration.

5. Answer any three of the following (5 x 3)

- (a) Write short notes on principle of cold plasma treatment in foods.
- (b) What is high pressure processing? Discuss its advantages over other processing techniques.
- (c) Discuss the principle and applications of pulsed electric field in food processing.
- (d) Maria is allergic to caffeine. Discuss the most suitable technology suggested for decaffeination of coffee, also suggest its principle and other applications.
- (e) Discuss the applications of infra red heating in foods.

-Q1	CO	Q2	CO	Q3	CO	Q4	CO	Q5	CO
a-e	CO1	A	CO1	A	CO2	A	CO3	A	CO5
f-j	CO1	B	CO1	B	CO2	B	CO3	B	CO5
k-o	CO5	C	CO1	C	CO3	C	CO4	C	CO5
		D	CO1	D	CO3	D	CO5	D	CO5
		E	CO1	E	CO4	E	CO4	E	CO3