

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.Tech. Dairy Technology 2018-19

Semester	: IV (V Dean)	Academic Year	: 2018-2019
Course No.	: DT- 406	Course Title	: Ice-Cream and Frozen Desserts
Credits	: 2+1=3	Total Marks	: 50
Day & Date	: Thursday, 27.06.2019	Time	: 15.00 to 17.00 Hrs.

- Note :**
- 1) All questions from **Section 'A'** are compulsory.
 - 2) Solve **Any Three** questions from **Section 'B'**.
 - 3) Draw neat and well labeled diagram wherever necessary.

SECTION –‘A’

Q. 1 A) Choose the most appropriate answer from the options given below. (05)

- i) Whipped Cream having sugar, colour and flavouring and frozen without agitation is called
 - a) Mousse
 - b) Lacto
 - c) Frappe
 - d) Cassata
- ii) An increase in volume of the ice cream over the volume of the mix, expressed as percent of the volume of the mix is known as
 - a) Interfacial tension
 - b) Over-run
 - c) Emulsion
 - d) Cavitation
- iii) Ices are made of fruit juice, sugar and stabilizer, with or additional fruit acid, colour, flavouring or water and frozen to an overrun of
 - a) 10-15%
 - b) 40-50%
 - c) 60-70%
 - d) 25-30%
- iv) The condition of slow melting in ice cream can be corrected by
 - a) Using fresh dairy products
 - b) Reducing amount of stabilizer and emulsifier
 - c) Homogenizing at proper temperature
 - d) All of the above
- v) To prevent or minimize detrimental effect of heat shock during storage and distribution is important function of
 - a) Emulsifier
 - b) Sugar
 - c) Stabilizer
 - d) polysorbates

B) Define the following. (05)

- i) Lacto
- ii) Invert Sugar
- iii) HLB Number
- iv) Dutch Process
- v) Mellorine

Q. 2 A) Give reasons for the following. (05)

- i) Sodium alginate is widely used as a stabilizer.
- ii) Ageing of mix is necessary before freezing.
- iii) To make a good product, it is necessary to control overrun in ice-cream.
- iv) Pre-treatments should be given to nuts before adding it to ice-cream.
- v) Fluctuation in temperature of ice-cream should be avoided during shipping.

- B) State whether True or False. If false, rewrite the statement after making necessary corrections in underline word. (05)
- i) Guar gum is a complex carbohydrate obtained from a legume grown in India.
 - ii) If an ice-cream is frozen with no air, it would be excessively cold in the mouth, heavy and soggy body.
 - iii) According to FSSAI, the minimum fat percentage in ice cream should be not less than 11%.
 - iv) Vanilla, the most popular flavor in ice-cream is traditionally being obtained from the roots of *vanilla fragrans*.
 - v) Cocoa is obtained from the *theobroma cacao* growing in the tropical regions.

SECTION – 'B'

- Q. 3 A) Write short notes on following. (05)
- i) Nutritive sweeteners
 - ii) Continuous ice-cream freezer
- B) Write the role of the following constituents in ice cream. Name five sources of each constituent. (05)
- i) Milk fat
 - ii) MSNF
- Q. 4 A) Discuss the objectives of ice cream hardening; also write various methods used for hardening and factors affecting the rate of hardening. (05)
- B) Write the advantages of emulsifiers in ice cream along with its mechanism of action in ice cream. (05)
- Q. 5 A) Define "Medium fat ice cream" as per FSSAI. (03)
- B) What is a typical freezing curve of ice cream mix? (03)
- C) Write steps for manufacture ice cream using batch freezer. (04)
- Q. 6 A) Write the approximate composition of economy, good average and deluxe types of commercial ice creams. (03)
- B) Write ideal sensory qualities of ice cream. (03)
- C) Describe the melting quality and wheying off defect in ice cream. (04)
- Q. 7 Write the distinguishing characteristics of the following stabilizers. (10)
- i) Gelatin
 - ii) Xanthan gum
 - iii) Sodium Carboxymethyl cellulose
 - iv) Locust bean gum
 - v) Pectin
