

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.Tech. (Dairy Technology)

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| Semester | : III (V Dean) | Academic Year | : 2023-2024 |
| Course No. | : DT-304 | Course Title | : Condensed & Dried Milks |
| Credits | : 3+1=4 | Total Marks | : 50 |
| Day & Date | : Saturday, 18/05/2024 | Time | : 2.00 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) Define the following. (05)
- Heat stability of milk
 - Alcohol index
 - True density
 - Infant milk food
 - Unsweetened condensed milk
- B) Answer in one line. (05)
- What is mean by seeding?
 - State any one difference in roller and spray drying.
 - Mention various types for heat classification of milk powders.
 - Enlist the gases used in gas packaging.
 - How will you reduce free fat in WMP?
- Q. 2 A) State whether True or False. If false, rewrite the statement after making necessary corrections in the underlined word. (05)
- The milk for the manufacture of WMP is homogenized at 175 to 250 kg/cm² at 62 to 74°C.
 - The Foam Drying product is exposed to a temperature not exceeding 45°C.
 - Preservation of unsweetened milk is carried out by addition of sugar.
 - WM Martin invented the first usable commercial production of dried milk.
 - Formation of –SH groups result in cooked flavour in milk.
- B) Choose the most appropriate answer from the options given below. (05)
- The main change in SCM during storage is
 - Age thinning
 - Age thickening
 - Colour change
 - Increase sweetness
 - The major basis of the commercial sterilization of evaporated milk is
 - Ratio of concentration
 - Salt balance theory
 - Time/Temp
 - Additives
 - The means to control the viscosity of recombined SCM is
 - Selection of Milk powder
 - Manufacturing process
 - Homogenization
 - All of these

(P.T.O.)

- iv) For manufacture of WMP using Roller Dryer
- a) Milk is concentrated to 35% TS
 - b) Milk concentrated to 40 % TS
 - c) Milk concentration may not be necessary
 - d) None of these
- v) The malted milk powder should have a fat content of about
- a) Min. 7.5 %
 - b) Max. 7.5 %
 - c) Min. 5.0 %
 - d) Max. 5.0 %

SECTION –B'

- Q. 3 A) Discuss in detail physic-chemical changes that take place during the manufacture of condensed and evaporated milk. (05)
- B) What do you mean by Pilot sterilization test and how it is carried out? (05)
- Q. 4 A) Discuss the defects in condensed milk with their causes. Also, suggest preventive measures too. (05)
- B) What is atomization? Explain the working principle of different types of atomizers. (05)
- Q. 5 Write short notes on.
- A) Age gelation. (03)
 - B) Grading and quality of raw milk for condensed and evaporated milk. (03)
 - C) i) Fluid bed drier ii) Malted milk food (04)
- Q. 6 A) Write in short note on cooling and crystallization. (03)
- B) Discuss Roller dried milk powder. (03)
- C) Explain manufacturing process of WMP using second stage spray drier. (04)
- Q. 7 Draw a flow diagram with all technical details and explain the manufacture of infant milk food in detail. (10)
