

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B. Tech. Dairy Technology 2019-20

Semester	: III (V Dean)	Academic Year	: 2019-2020
Course No.	: DT- 304	Course Title	: Condensed and Dried Milks
Credits	: 3+1-4	Total Marks	: 50
Day & Date	: Friday, 10.01.2020	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 labelled diagram wherever necessary.

SECTION – 'A'

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

- i) Sandiness in SCM develops when number of crystals per cubic millimeter is
 - a) 7500
 - b) 400,000
 - c) 750,000
 - d) 75000
- ii) Specific gravity of evaporated milk at 49° C is
 - a) 1.333
 - b) 1.072
 - c) 1.295
 - d) 1.336
- iii) Heat stability test for concentrated milk (approx. 20% T.S.) is usually performed at
 - a) 100°C
 - b) 110°C
 - c) 120°C
 - d) 130°C
- iv) Preheating of milk prior to concentration lengthen the running time of evaporator
 - a) By reducing bacterial load
 - b) By cleaning the evaporator
 - c) By modifying the casein of milk
 - d) By denaturing the whey protein
- v) Baume reading of skimmed sweetened condensed milk at 16°C would be
 - a) 33.7
 - b) 38.0
 - c) 37.5
 - d) 40.0

B) State whether true or false. If false rewrite the statement after necessary corrections. (05)

- i) As per PFA, SCM should possess 40 % sugar (mini.)
- ii) John Meyenberg known as the father of the process of milk condensing.
- iii) In India Nestle (Name of Dairy Industry) is credited with the first ever commercial production of SCM under standard techniques in 1961.
- iv) The multiple stage evaporators requires as 1 kg of steam for every 1 kg of water removed.
- v) A single stage evaporator effects required about 1 kg of steam for every 1.5kg of water evaporated.

(P.T.O.)

- Q. 2 A) Define / Explain the following in 2-3 line each. (05)
- i) Fluid bed dryer.
 - ii) Pilot sterilization test.
 - iii) Nozzle atomizer.
 - iv) Heat classification of SMP.
 - v) Lacithination in milk powder.
- B) Give the formulae for the determination of following. (05)
- i) Specific gravity of condensed milk at 16°C.
 - ii) % sugar ratio (SR) in condensed milk.
 - iii) True density of skim milk powder.
 - iv) % sugar in condensed milk.
 - v) Baume reading at 16°C.

SECTION – 'B'

- Q. 3. A) Draw a labeled diagram of Two stage spray drier. Give its advantage over single stage spray drier. (05)
- B) What is the importance of cooling and crystallization of condensed milk? (05)
- Q. 4 A) Discuss the recent advances that have taken place in the dried milk industry in the last decade. How has it helped the consumer? (05)
- B) Give the characteristics and causative factors for the following defects.
- i) Age thickening in evaporated milk. (2.5)
 - ii) Low solubility of skim milk powder. (2.5)
- Q. 5 A) Describe the method of preparing Evaporated milk. (03)
- B) Discuss the method of manufacture, packaging and storage of SCM. (04)
- C) Caking in dried milks. (03)
- Q. 6 Discuss the following.
- A) Forced crystallization. (04)
 - B) Instant milk powder (03)
 - C) How MVR differs from TVR. (03)
- Q.7 Write in detail the use of membrane processing technology in concentration of milk. (10)
