

MAHARASHTRA ANIMAL AND FISHERY SCIENCES UNIVERSITY, NAGPUR
SEMESTER END THEORY EXAMINATION, B.TECH. (D.T.) DEGREE COURSE 2017-18

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|------------|------------------------|---------------|----------------------------|
| Semester | : III (V DEAN) | Academic Year | : 2017-2018 |
| Course No. | : DT- 304 | Course Title | : Condensed and Dried Milk |
| Credits | : 3+1=4 | Total Marks | : 50 |
| Day & Date | : Saturday, 06.01.2018 | Time | : 15.00 to 17.00 |

- 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) Human milk is deficient in
 - a) Beta-Lactoglobulin
 - b) Immunoglobulin
 - c) Alpha-lactalbumin
 - d) Serum albumin
- ii) The WPNI of Low heat powder is
 - a) > 6.0 mg/g
 - b) < 6.0 mg/g
 - c) > 4.0 mg/g
 - d) < 4.0mg/g
- iii) Mold button defect in SCM is due to
 - a) *Mucor pusillus*
 - b) *Torula lactis candense*
 - c) *Aspergillus repens*
 - d) *Aspergillus niger*
- iv) Who is the father of "Condensed milk".....
 - a) T.S. Grimwade
 - b) M. Dirchoff
 - c) Gail Borden
 - d) John B. Meyenbarg
- v) According to FSSAI the minimum fat contents in whole milk powder is
 - a) 20
 - b) 26
 - c) 36
 - d) 40

B) Define the following. (05)

- i) Pilot sterilization
- ii) WPNI
- iii) Agglomeration of milk powder
- iv) Malted milk food
- v) Feathering of coffee

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

- i) Fore-warming of milk before condensing.
- ii) Use of two stages for drying.
- iii) Seeding of SCM.
- iv) Lecithination of WMP.
- v) Bloating of condensed milk (microbial).

(P.T.O.)

- B) State whether True or False. If false. Rewrite the statement after making necessary corrections in underlined word. (05)
- i) The vacuum maintained inside the Drum dryer is between 53.5 to 61.5cm Hg.
 - ii) The peripheral velocity of centrifugal atomizer is about 190-200 m/s.
 - iii) The "Fishy flavor" in evaporated milk is due to the action of proteus lichniformis.
 - iv) The cow milk is modified to whey protein:Casein ratio of 40:60 to humanize it.
 - v) MVR is more efficient than TVR.

SECTION - 'B'

- Q. 3. A) Briefly discuss the membrane filtration techniques applied in the manufacturing of condensed and dried milk. (05)
- B) Discuss the steps involved in the manufacture of "low heat SMP". (05)
- Q. 4. A) Explain various defects of SCM, their causes and remedy. (05)
- B) Discuss salient features in the development of Condensed and dried milk industries. (05)
- Q. 5. A) Differentiate between Human and Cow milk. (03)
- B) Write a note on "Heat stability of milk". (03)
- C) Give the flow chart (with all technical details) for the manufacture of "Whole milk powder". (04)
- Q. 6. A) Explain "Three Stage Drier". (03)
- B) Describe any three body and textural defects of Skim milk powder, their causes and remedies. (03)
- C) Mention the steps (with all technical details) involved in the manufacturing of infant milk powder. (04)
- Q. 7. Discuss various physico-chemical, microbiological and sensory changes that are taking place during manufacture of condensed milk. (10)
