

Roll No. _____

2018
gndsa

M.Tech. Food Technology
III Semester Examination 2018
Course Code: MFTC-303

Course Title: Technology of milk and milk products

Time: 3 hours

Max Marks: 75

Attempt all the questions. Marks are mentioned against each question

Q1. Briefly answer the following (1x15)

- (y) Differentiate between bacto-fugation and clarification
- (z) Write FSSAI standards for double toned milk.
- (aa) Write full form: RMRD, SSHE, NDDB, MBRT
- (bb) Why is acid-recirculation required in CIP?
- (cc) What do you mean by Upperrization and Vacreation?
- (dd) How is pasteurization different from sterilization and blanching?
- (ee) Define overrun?
- (ff) What is the advantage of ultrafiltration in cheese making?
- (gg) Differentiate between butter and butter oil.
- (hh) Define Stoke's law.
- (ii) What is Boudin test?
- (jj) Human milk contains _____ % lactose and _____ % casein.
- (kk) The ratio of Ca+Mg/citrates+phosphates is known as _____.
- (ll) The only preservative that can be added to butter is _____.
- (mm) _____ milk is microbiologically stable at room temperature.

Q2. Answer any three of the following (5x3)

- (k) Write short notes on: (i) Ropiness of milk (ii) Neutralization of cream
- (l) Give FSSAI requirement and flow diagram for preparation of sweetened condensed milk with technical details.
- (m) Enlist various stabilizers, emulsifiers and sweetening agents used in ice-cream preparation.
- (n) Condensed milk with 9.05% fat and 31.0% total milk solids is to be prepared. 5000 kg of milk testing 6.5% fat and 9.58% SNF is available for standardization. Calculate the amount of skim milk testing 0.1% fat and 10.25% SNF is required for standardization of milk.
- (o) Enlist the different types of fermented milk products and explain the method of manufacture of *shrikhand*.

Q3. Answer any three of the following: (5X3)

- (k) Explain the flow diagram for manufacturing of Cheddar cheese.
- (l) Write applications of plate heat exchangers for dairy industry.
- (m) To meet the shortage of liquid milk in summer, dairy is required to prepare 10,000 L of Recombined toned milk (3% fat & 8.6% SNF) using white butter (80% fat & 1.5% SNF) and SMP (94.5% SNF, 1.5% fat & 4% moisture). Calculate the quantities of white butter, SMP and water required to prepare the same.
- (n) Give the flow diagram for the preparation of butter and describe 'Churning' step in detail.
- (o) State the advantages of homogenized milk.

Q4. Answer any three of the following (5x3)

- (k) Give the composition of Paneer. What is the effect of coagulation temperature on quality, yield and solids recovery of Paneer?
- (l) Comment on 'Quality Control in Milk Processing'.
- (m) List out the various pre-treatments given to milk intended for skim milk powder manufacture. Explain shortly the advantages of these pre-treatments.
- (n) Write advantages and disadvantages of spray drying over roller drying. Explain line diagram for production of spray dried milk powder.
- (o) Write the steps in continuous khoa making process.

Q5. Write short notes on any three of the following: (5x3)

- (k) C.I.P cleaning of milk storage tanks
- (l) Milk adulteration
- (m) Packaging of milk into single service pouches
- (n) Operation flood
- (o) Aseptic packaging of milk