

**Chittagong Veterinary and Animal Sciences University**

**MS January-June Semester 2023 Final Examination**

**M. S. in Dairy Science**

**Course Title: Dairy Technology (Theory), Course Code: DTL - 601**

**Full Marks: 40, Time: 2 Hours**

(Figures in the right margin indicate full marks. Answer any **FOUR** questions of which question number 4 is compulsory)

1. a) What do you mean by Dairy Technology? Write down the importance of Dairy Technology. 3
- b) Illustrate manufacturing steps of Dairy Ice-Cream. Explain Overrun of Ice-Cream. 4
- c) Briefly describe the defects of Dairy Ice Cream 3
2. a) What is difference between Butter and Ghee? 2
- b) What are the various methods of manufacture of Butter and Ghee? Briefly describe which are suitable for commercial Butter operations. 3
- c) Briefly describe the physio-chemical properties of Ghee. 3
- d) How can you proceed for assessment of methods for detection of palm oil and/or coconut oil in ghee? 2
3. a) Define Cheese with Classification. 2
- b) Briefly describe the Cheddar Cheese manufacture. How can you estimate of Cheese yield? 3
- c) What are the bacterial cultures used in Cheese manufacture? Briefly describe it. 3
- d) State the action of Rennet in Cheese manufacture. 2
4. a) What is difference among Curd, Dahi and Yoghurt? 2
- b) Briefly describe manufacturing steps of Dahi. 3
- c) What are the biochemical change occur during preparation of Dahi? Briefly describe it. 3
- d) Shortly describe the nutritional and therapeutic properties of functional Yoghurt. 2
5. a) Define powder milk with classification. 2
- b) Briefly describe about manufacturing whole milk powder by pray-drying system. 3
- c) Compare the physical and sensory characteristics of drum and spray dried milk. 3
- d) Briefly describe the health benefits of powder milk with schematic diagram. 2
6. a) What do you mean by indigenous dairy products? 1
- b) Illustrate manufacturing steps of Milk Vita Rossomalai. 3
- c) Briefly describe the health benefits of Rosogalla? 3
- d) Give a schematic diagram for Sandesh Preparation. 3

**Department of Dairy and Poultry Science**  
**Chattogram Veterinary and Animal Sciences University**  
**MS January – June semester Final Examination 2023**  
**MS in Dairy Science**  
**Course Title: Dairy Chemistry (Theory)**  
**Course Code: DCH – 601 (T)**  
**Full Marks: 40, Time: 2 hours**

(Figures in the right margin indicate full marks. Answer any four (4) questions from each section. Split answers are strongly discouraged.)

1. a) Illustrate the mechanism of bi-acetyl formation in dairy products. 5  
b) Draw the chemical structure of casein. 5
2. a) Describe the chemistry of curd formation during yoghurt preparation. 5  
b) Tabulate the changes in detail composition of colostrum over time after parturition. 5
3. a) Illustrate the pathway of lactic acid formation from lactose. 5  
b) Draw the chemical structure of lactose. 5
4. a) List the exogenous and endogenous enzymes of milk along with their specific functions. 5  
b) Classify the proteins in milk. What are the uses of milk proteins? 5
5. a) Describe the principle of cream fat rising from milk. 5  
b) Draw the chemical structure of milk fat. 5

**Chattogram Veterinary and Animal Sciences University**

**Dept. of Dairy and Poultry Science**

**MS in Dairy Science**

**January – June Semester/2023**

**Course: Quality Control of Dairy Products; Course Code: QCD-601**

**Total Marks: 40 Time: 2hour**

Answer any four questions from the following. Figures in the right margin indicate full marks.

1. a) Differentiate between quality control and quality assurance. 5.0  
b) How many layers are in milk Tetra Pack? List the functions of each layer for preserving the quality of the products. 5.0
2. a) What are the BSTI permitted food additives with maximum level of use for manufacturing milk powder? 5.0  
b) Mention the defects, causes and remedies of whole milk powder. 5.0
3. Write the sampling techniques of raw milk, pasteurized milk, butter, ice-cream and powder milk for performing chemical and microbiological tests. 10
4. a) Mention the judging score card of cheese. 2.0  
b) What are the BSTI guidelines regarding essential composition and quality factors for manufacturing cheese in Bangladesh. 8.0
5. a) What were the biological backgrounds of LP-System for preserving raw milk? 05  
b) What were the basis of adding limit of chemicals in Activator-1 and Activator-2 of LP-system? 05

**Department of Dairy and Poultry Science**  
**Chattogram Veterinary and Animal Sciences University**  
**MS January – June semester Final Examination 2023**  
**MS in Dairy Science**  
**Course Title: Dairy Nutrition (Theory)**  
**Course Code: DNT – 601 (T)**  
**Full Marks: 40, Time: 2 hours**

(Figures in the right margin indicate full marks. Answer any four (4) questions from each section. Split answers are strongly discouraged.)

1. a) Describe the factors to be considered in colostrum feeding of calves. 5  
b) What are the phases of development of the calf's digestive system? State the changes in each phase. 5
2. a) Tabulate the nutrient requirements of high-yielding cows at different stages of lactation. 5  
b) Describe different processes of feeding milch cows. 5
3. a) State the thumb rules of feeding concentrate to milch cows and buffaloes. 5  
b) Briefly describe the feeding strategy during the transition phase of cattle. 5
4. a) Define TMR. Describe the process of formulation of TMR for a milch cow. 5  
b) Sketch the process of metabolism of carbohydrates in a dairy cow. 5
5. a) State the reasons for drying off. State the principles of drying off in a cow. 5  
b) Briefly describe the process of metabolism of NPN in a cow. 5

**Chittagong Veterinary and Animal Sciences University**  
**MS January-June Semester 2023 Final Examination**  
**M. S. in Dairy Science**

**Course Title: Functional Dairy Ingredients (Theory), Course Code: FDI-601**

**Full Marks: 40, Time: 2 Hours**

(Figures in the right margin indicate full marks. Answer any **FOUR** questions of which question number 1 is compulsory)

1.
  - a) What do you mean by functional dairy foods? Classify the functional foods. 3
  - b) Briefly describe benefits of bioactive components in milk and dairy products. 3
  - c) Briefly describe the healthy aging function of major milk protein/ biologically active milk and dairy peptides/components. 4
  
2.
  - a) Illustrate consumer group with varying health status & requirements regarding functional foods. 2
  - b) Illustrate effects of dairy product consumption on cardiovascular health and blood pressure. 3
  - c) "Caseins as source of bioactive peptides"-explain it 3
  - d) Illustrate the applications of major milk proteins. 2
  
3.
  - a) Define probiotics, prebiotics and symbiotic with example. 2
  - b) Briefly describe the health benefits of prebiotics 4
  - c) Give a flow chart for the galactooligosaccharides manufacture 3
  
4.
  - a) Enumerate the legislations and relevant regulations situation regarding health claims and functional foods. 2
  - b) Briefly described about the disease reduction risk FOSHU and foods with nutrient function claims. 3
  - c) Enumerate the genomic overview and biological functions of exopolysaccharide biosynthesis in bifidobacterium spp 5
  
5.
  - a) Briefly described the immune enhancing ability of milk protein. 3
  - b) Illustrate the mechanisms of production of major bioactive peptides from milk proteins 3
  - c) "Lactoferrin to reduce SARS-CoV-2 induced"-explain it. 4
  
6. Write short notes (**any 4**) on: **2.5 x 4 = 10**
  - a. Effects of dairy product consumption on prevent Cancer
  - b. Role of microbiota in inflammatory bowel disease,
  - c. Enlist the immunomodulation bioactive components in milk and dairy products.
  - d. Exopolysaccharides produced by LAB,
  - e. Relationship between bioactive function and milk components.

**Chattogram Veterinary and Animal Sciences University**  
Department of Dairy and Poultry Science  
Semester Final Exam of MS in Dairy Science (January-June/2023)  
Course Code: ABS-601, Course Title: Advanced Biostatistics  
Full Marks: 40 Time: 2 hours

*[Answer any five (5) questions. Figures in the right margin indicate full marks. Split answering is not recommended]*

1. A random sample of 66 goat were examined and the relationship between their live weight and chest girth was observed. Which tool was used to measure this relation? Test the significance of this tool. 8.0
2. A study was conducted to investigate the relationship between the sheep's live weight and its chest girth. A random sample of 66 sheep studied and chest girth found between 60 cm and 90 cm. According to research, weight grows by an average of 1.04 kg for every 1 cm increase in chest circumference. How can you find this relation in statistics? Define this term. How do you test the significance of this relation? 8.0
3. 26 dogs were randomly allocated to three treatment diets of control, soluble pyrophosphate, and sodium hexametaphosphate to determine calculus on dogs' teeth. Test the hypothesis that the median calculus accumulation was equal in the three diet groups after four weeks on the diet. 8.0
4. A total of 20 Black Bengal goats were assigned to concentrate at 150 g and 200 g to observe Crude protein. How can you test if the mean difference in crude protein for concentration supplementation is significantly different or not? 8.0
5. What is non-parametric test? How does it differ from parametric test? Write the parametric similar test with non-parametric test. 8.0
6. Write down the assumption of conducting chi-square test. Describe the procedure of test of significance of chi square test. 8.0
7. Write down the difference between CRD and RBD. Discuss the analysis of variance of Randomized Block design. 8.0