

January to June Semester, 2021 Final Examination
 Department of Dairy and Poultry Science
MS in Dairy Science
 Chittagong Veterinary and Animal Sciences University
 Course Title: Advanced Biostatistics (Theory)
 Course Title: BST-601
 Full Marks: 40 Time: 2 hours

Answer any 4 from the following questions. Values are shown in the right margin in each question

1. a) What is meant by the Coefficient of Determination with a value of 81.5%? Explain with an example. 5
 b) A study was conducted to determine the relation between weekly advertising expenditure and sales of a poultry feed and the data recorded are: 5

Expenditure (in thousand tk)	40	20	25	20	30	50	40	20	50
Sales (in thousand tk)	363	405	395	345	484	397	490	436	601

Draw a Scatter Diagram and fit the regression line to predict weekly sales from advertising expenditures.

2. The following data refer to the milk production (in thousand kg) of a sample of the following cows in a dairy farm annually:
 48, 49, 60, 55, 52, 54, 68, 52, 61, 58, 47, 43, 54, 56, 58, 62, 63, 64, 49, 48, 56, 54, 62, 55, 45.

- a) Test whether the mean production is greater than 65 thousand kg? 5
 b) Suppose the milk production increased 2kgs per cow after applying feed A for six months. Test whether there is any significant difference between the given data for feed A and another data of the sample of 20 cows with mean milk production of 49 thousand kg and sd of 4 thousand kg? 5

3. a) Derive the formula to test a population mean with a specific value in case of known population variance. 5
 b) The authority of Aarong claims that the selling price of their certain dairy product is very standard and it is 150tk per unit with standard deviation of 45tk. Consumer's Association of Bangladesh wants to clarify this price using statistical procedure. A random sample of the selling prices of 100 products were collected from Aarong. The average price per unit was 151tk. Can CAB conclude at 5% level of significance that the average price is standard? 5

4. a) Explain errors in hypothesis 4
 b) Two groups of goats were fed two different feeds to determine the increase in body weight. At the end of the experiment the body weights were calculated. The mean and variance are given below: 6

	Feed A	Feed B
Mean	4.8	5.1
Variance	0.21	0.25
size	50	40

Which feed will increase the body weight of goats?

5. a) Define Rank Correlation. When should we use it? 4
 b) A certain drug is effective in curing cold. In an experiment on 500 farm owners suffering from cold, half of them were given sugar pills and half of them were given drugs. Is there any effect of drugs on curing cold? The reaction to the treatment on patients are recorded as below: 6

	Helped	Harmed	No effect
Sugar pills	130	40	80
Drugs	150	30	70

Department of Dairy and Poultry Science
Chattogram Veterinary and Animal Sciences University
MS in Dairy Science
Semester Final Examination (January-June 2021)
Course Title: Dairy Nutrition (Theory)
Course code: DNT-601, Full marks: 40, Time: 2 hours

Figures in the right margin indicate full marks. Answer any four (4) questions. All questions must be answered chronologically!

1. How do feed factors intrinsically regulate rumen kinetics and rumen environment? What are the consequences of fiber type and roughage to concentrate ratio on dynamics of rumen environment? 10.0
2. What factors should you consider to ensure optimization of fiber utilization in ruminant animals? How do the nature and quantity of dietary fiber for ruminant animals interfere the public health issues? 10.0
3. Is there any connection among sub-acute ruminal acidosis (SARA), acute ruminal acidosis (ARA), chop length and $peNDF$ content of a dairy ration? Why do SARA turn to ARA? How does ARA provoke sub-clinical lameness in crossbred dairy cows? 10.0
4. Under which specific circumstances supplementation of UDP is truly a noble approach? Do you think supplying RDP in ruminants is simply a wastage? How should you optimize availability of dietary nitrogen in the ruminant animals? 10.0
5. 'NRC or ARC or Thumb rule' which one is really a noble approach under current perspective of Bangladesh? Which feeding system would be most applicable for high yielding crossbred dairy cows for commercial dairy farms in Bangladesh? 10.0

Chittagong Veterinary and Animal Sciences University
MS January-June Semester 2021 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 5 is compulsory)

1. a) What is a functional dairy food? Classify the functional foods. 3
b) Briefly describe benefits of bioactive components in milk and dairy products. 3
c) Illustrate the major biologically active milk components and their functions. 4
2. a) Illustrate consumer group with varying health status & requirements regarding functional foods. 2
b) Sketch health benefits of functional foods. 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 mood of action of milk components against cancer. 3
c) Illustrate the mechanisms of lactoferrin that defends against Covid-19. 4
6. Write short notes (**any 4**) on: 2.5 x 4 10
a. Interactions between gut microbiota and host, 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

Chittagong Veterinary and Animal Sciences University
MS January-June Semester 2021 Final Examination
M. S. in Dairy Science
Course Title: DAIRY CHEMISTRY (Theory), Course Code: DCH-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) | Define Dairy Chemistry? Write down the importance of Dairy Chemistry. | 3.0 |
| | b) | Enumerate the detail composition and structure of milk. | 5.0 |
| | c) | Illustrate the importance of milk proteins? | 2.0 |
| 2. | a) | Briefly describe both indigenous and exogenous enzymes of milk. | 3.0 |
| | b) | State one most important enzymes of milk, which related to pasteurization. | 3.0 |
| | c) | Classify the milk protein? | 4.0 |
| 3. | a) | Briefly describe the Principles of cream/fat rising. | 2.0 |
| | b) | Classify the lipid and fatty acid of milk. | 5.0 |
| | c) | Is dairy fat good or bad for you? | 3.0 |
| 4. | a) | Briefly describe the chemistry of curd formation during dahi preparation | 4.0 |
| | b) | Illustrate the pathway of lactic acid formation from lactose | 4.0 |
| | c) | Mechanism of biacetyl formation from fermentation of citric acid. | 2.0 |
| 5. | Write short notes : | | 2.5 x 4=10 |
| | a). Chemical aspects of flavour b). Sources of radio active materials in milk products. c).
Detection procedure of radio active materials in milk products d). A1 and A2 milk. | | |

Chittagong Veterinary and Animal Sciences University

Dept. of Dairy and Poultry Science

Final Examination January-June Semester/2020

MS in Dairy Science

Course: Quality Control of Dairy Products

Course Code: QCD-601, Total Marks: 40, Time: 2 hour

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

1. a) What are the differences between quality control and quality assurance of dairy products? 05
b) How you will make sure that milk is properly pasteurized. Explain the procedure. 05
2. a) List the BSTI permitted food additives with maximum level of use for milk powder, ghee and butter. 05
b) List the score of different parameters for evaluating the quality of milk powder and mention the Bangladesh Standard for whole & skim milk powder. 05
3. a) Mention the BSTI standard for pasteurized milk and information should be appeared legibly on each packet. 03
b) Mention the protocol to be followed as per Bangladesh Standard for packing and marking pasteurized milk. 07
4. a) List the score of different parameters for evaluating the quality of butter. 02
b) What are the causes for following defects of butter and how will prevent these? 08
A) Flavour: Sour, Bitter, Alkaline, Fishy, Flat, Rancid, Oxidized
B) Body and Texture: Crumbly, Greasy, Gummy, Gritty
C) Colour: Mottled, Wavy, Pale
5. a) Mention the BSTI standard for plain and composite ice-cream. 03
b) What are the pre-requisite of BSTI for using fruits in ice-cream? 03
c) Mention the different flavor defects with their causes of market milk. 04

Chittagong Veterinary and Animal Sciences University

Dept. of Dairy and Poultry Science

Final Examination January-June Semester/2020

MS in Dairy Science

Course: Dairy Technology

Course Code: DTL-601, Total Marks: 40, Time: 2 hour

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

1. a) Write the role of milk constituents in condensed milk. 03
b) Discuss the method of manufacture, packaging and storage of condensed milk. 07
2. a) What are the objectives of production of dried milks? 02
b) Illustrate the method of manufacture of skim milk powder by spray drying process. 08
3. a) Discuss the manufacturing procedure of acidophilus milk. 06
b) Show the manufacturing procedure of sterilized milk through a flow diagram. 04
4. a) Discuss the method of manufacture of chocolate milk. 06
b) List the factors to be strictly followed for mixing fruit syrup or juices with milk during manufacturing of milk shakes. 04
5. a) Explain the factors those influence the loss of fat through skim milk during cream separation. 05
b) Illustrate the manufacturing steps of butter oil at industry level. 05

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 Department of Dairy and Poultry Science
MS in Poultry Science
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 Course Title: BST-601
 Full Marks: 40 Time: 2 hours

Answer any 4 from the following questions. Values are shown in the right margin in each question

1. a) Explain rejection and non rejection regions with an example. 5
 b) You are given a data set of 15 employees of different farms of Chattogram of their gender and farm management. 5

Farm management	gender
G	M
P	M
P	F
G	F
G	M
A	F
A	M
P	M
P	F
A	M
A	F
G	M
G	M
P	F
P	F

Do gender have a significant contribution to farm management? G stands for good, A for average and P for poor.

2. The following data refer to the weight of chickens(in kg) of the current batch in a poultry farm:
 1.2, 1.1, 0.9, 1.25, 1.11, 1.05, 1.2, 1.25, 0.95, 0.9, 1.2, 0.9, 0.85, 1.04, 1.1, 1.5, 0.89, 1.1, 1.01, 1.12.
- a) Test whether the mean weight is less than 1 kg? 5
 b) Suppose the weight of chickens decreased 0.2 kgs per chicken after applying feed A for a month. Test whether there is any significant difference between the given data for feed A and another data of the sample of 15 chickens with mean weight of 0.9 kg and sd of 0.01 kg? 5
3. a) Derive the formula to test two population means in case of unknown population variance 4
 b) Estimate the regression line of weight on age of chickens from the following sample: 6

Age(day)	5	7	9	11	13	15
Weight(kg)	.25	.45	.60	.80	.90	1

What will be weight of chickens when the age is 20 days?

4. a) Explain multiple regression. 4
 b) Two groups of 20 cows were fed 2 different feeds (C & D). At the end of the experiment, the following sample means and variances were calculated for weight of cows. Is there any significant difference between the given 2 feeds in regard to weight of cows? 6

Particulars	Feed C	Feed D
Mean	4.5	5.6
Variance	.20	.34

5. a) Define Karl Pearson Correlation. When should we use it? 4
 b) The ranks of 5 students in Biostatistics and Histology are: 6

B	3	4	5	2	1
H	1	2	3	4	5

Compute Rank Correlation. In the above data when rank correlation will be +1?

Chittagong Veterinary and Animal Sciences University

Department of Dairy and Poultry Science

MS in Poultry Science

Final examination-2021/ January-June Semester- 2021

Sub: Avian Health and Hygiene. Course code-AHH - 601

Total marks: 40

Total time: 2 hours

Answer any of the four questions. Figure in the right margin indicates the mark.

1.	a) Enlist the factors that influence the poultry health and disease occurrence.	3
	b) Suppose, a poultry farm owner wants to start a commercial layer farm. However, he has no idea how to prevent the future flock from any kind of possible infection or infestations. Therefore, he seeks your advice in this regards. Briefly outline your suggestion and advice in this issue.	7
2.	a) What are the possible sources of avian influenza infection in a poultry farm?	1
	b) Briefly mention the clinical sign and symptoms of avian influenza in duck and chickens.	3
	c) Briefly describe the prevention and control methods for this disease both in national and international level.	6
3.	a) Define heat stress. What is consequence of heat stress in a commercial broiler flock?	5
	b) How will you minimize heat stress in a commercial broiler flock?	5
4.	A local commercial layer farm is experiencing sudden high morbidity and mortality rate of birds. The birds showed sing of depression, inappetite, coughing, sneezing, gasping, nasal discharge, watery eyes, bright green diarrhoea and nervous signs such as paralysis and convulsions. The percentage of production of thin-shelled eggs increased dramatically while most of the birds stop egg production. During post-mortem, petechial hemorrhages was observed in the proventricular mucosa and intestinal serosa accompanied by multifocal, necrotic hemorrhage at cecal tonsils.	
	a) What is your diagnosis?	2
	b) What is the economic impact of this disease?	2
	c) Describe the prevention and control of this disease.	6
5.	a) Define feed additive. Enlist the different feed-additives that are generally used in poultry diets.	4
	b) What strategies should be taken to improve the gut health of poultry?	6
6.	a) Write down the importance of poultry litter and carcass management from public health and environmental safety perspective.	5
	b) Briefly describes the different methods of hatchery waste management.	5

Chattogram Veterinary and Animal Sciences University

Department of Dairy and Poultry Science

MS in Poultry Science, January- June, 2021, Final Examination

Course: Poultry Processing and Products Technology, Course Code: PPT-601

Total Marks: 40, Time: 2 Hours

Answer any four (04) questions from the following. The figures in the right margin indicate full marks.

01. a. Define the following terms: Poultry Product, Fryer, MDM, Condition, Biological Value 5.0
- b. Explain the food value of poultry meat. 5.0
02. a. Elucidate the factors determining the quality of poultry meat. 5.0
- b. Summarize the specification for grading of live poultry according to USDA. 5.0
03. a. Elucidate the underlying mechanism of preservation of meat through smoking. Classify smoking with respective uses. 3+3=6.0
- b. Prepare a formula of sweet pickle curing for 200 pounds of meat. 4.0
04. a. Elaborate the terms shrinkage, stunning, slaughtering and scalding of poultry. 4.0
- b. Draw and identify different parts of a poultry egg. List the different functional properties of egg protein in food system with mode of action and example. 3+3=6.0
05. a. Differentiate the following terms: 3x2=6.0
- i) CCP¹ and CCP²
- ii) Condition and Reject
- iii) Food borne infection and intoxication
- b. Write a short note on HACCP in Poultry Processing Plant. 4.0

Chattogram Veterinary and Animal Sciences University
Department of Dairy & Poultry Science
MS in Poultry Science
(January –June Semester) Final Examination- 2021
Subject: Poultry Reproduction; Course Code: PRN-601
Total Marks: 40; Time: 2 hours

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

1. Draw and label female genital system of a chicken and state its function. 10
2. Write a short note about method of mating of Poultry. 10
3. Discuss about the system of poultry breeding. 10
4. Briefly describe the physiology of formation of egg. 10
5. Write a short note about histology of testis of cock and its function. 10
6. What is the function of ovary? Discuss about the term active ovary and inactive ovary. 10

Chattogram Veterinary and Animal Sciences University
MS in Poultry Science final Examination
Semester: January–June, 2021
Subject: Ducks & Specialized Fowl Production-Theory
Course Title: DSF-601: Total marks: 40; Time: 2 hours

*Answer any five questions of the following including 1;
Figures in the right margin indicate full marks*

1. What is hytop? Discuss selection criteria and production strategy to enhance duck meat and egg production globally 8
2. Discuss a method with which you can hatch duck egg cheaply and locally 8
3. Differentiate geese from swan. Discuss the feeding, fattening and marketing systems of geese production briefly 8
4. Discuss why quail rearing in the cage system is preferable to floor system?. Rearing quail is more profitable than chicken- justify this. 8
5. a) What is Dovecote? Is it possible to run pigeon hatchery—justify ? 4
b) Describe the feeding and housing management system of pigeon 4
6. Narrate strategies that you could follow to popularize specialized fowl meat production in Bangladesh 8
7. Mention food value of turkey meat. State poult management system 8.0
8. **Write short note on any four of the following: $4 \times 2 =$** 8.0
a) Lean meat b) Animal crop c) Watchdog d) Ostrich meat e) Ratites f) Crop milk g) Mule duck and mallard duck