

Chattogram Veterinary and Animal Sciences University  
Department of Animal Science and Nutrition  
MS in Animal and Poultry Nutrition Final examination  
January to June Semester 2023  
Subject: **Nutrition Studies and Research (NSR-601)**  
Full marks: 40, Time: 2 hours

Figures in the right margin indicate full marks. Answer any **FOUR** from the following questions. Fragmented answers will not be taken into consideration.

1. a) How can you measure digestibility of Maize-silage in In-sacco and indicator method? 6.00  
b) Briefly describe the factors that can modulate the digestibility of animals. 4.00
2. a) How microbial protein synthesis are occurred? Briefly describe one technique for estimation of microbial protein production from a heifer. 5.00  
b) Write down the ruminal ammonia determination methods and briefly describe any one among them. 5.00
3. a) Define Cannula and briefly describe the easiest method of cannulation in large ruminant. 5.00  
b) How you can determine rumen volume by Polyethylene Glycol marker? 5.00
4. Describe the basic steps of conducting nutritional research 10.00
5. Write short note on following topics:  
a) Determination of forages intake by grazing herd. 5.00  
b) Volatile Fatty acid determination techniques of ruminant. 5.00

**Chattogram Veterinary and Animal Sciences University**  
Department of Animal Science and Nutrition  
Semester Final Exam of MS in Animal and Poultry Nutrition (January-June/2023)  
Course Code: ABS-601, Course Title: Applied 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 16 year prospective study conducted by Avalos et al. (2023) among 751 men and 1008 women from San Diego. A multivariate analysis showed that the intake of highest amount of low-fat dairy products increases the higher Cardiovascular disease (CVD) risk. Which statistical tool can be used to detect this relation ? Define and state the properties of this tool. 8.0
2. Jakovljevic and Gibbs (1993) studied 29 dogs without known gastric lesions. The measurements (in mm) of the dogs' mucosal folds were determined radiographically and then made an association with their body weights (kg). It was shown that an increase in body weight of one kg correlates to an increase in rugal fold thickness of 0.07 mm. Which statistical tool can be used of this relation? How do you test the significance of this tool? 8.0
3. What is test of significance? Briefly discuss the steps of conducting a test of significance of a population parameter. 8.0
4. A novel diet for laboratory rats was tested to see if it had any potential to promote rapid growth. 18 rats of the same sex were selected, and their initial weight and weight at 60 days of age were recorded. The distribution of weight difference were positively skewed. Write a suitable test procedure to determine whether the test diet was successful or not. 8.0
5. A total of 16 female Black Bengal Goats of average live weight were randomly divided into four equal groups to evaluate the effect of different level of concentrates supplementation on milk production of BBG. How can you test whether the average milk production significantly differ for concentrates supplementation or not? 8.0
6. Write down the application situation of chisquare, t test, F test and Z test. 8.0
7. What is sampling? Briefly discuss the classification of all probability sampling. 8.0

Department of Animal Science and Nutrition  
Chittagong Veterinary and Animal Sciences University  
MS in Animal and Poultry Nutrition  
Semester Final Examination (January-June 2023)  
**Course Title: Modern Techniques in Nutrition Studies (Theory)**  
Course code: MTN-601, Full marks: 40, Time: 2 hours

**Figures in the right margin indicate full marks. Answer any four (4) questions. There is no way to consider fragmented answers!**

1. Is Near Infra-Red Spectroscopy (NIRS) a hypothetical dream or a real breakthrough in the history of animal nutrition? Should we replace it with traditional wet chemistry? What are the calibration drawbacks of NIR compared to traditional wet chemistry and how do you think to resolve them? 10.0
2. What is the best method for tracing ultra-critical quantity of analyte in the unknown solutions? Despite spectrophotometric techniques, why has atomic absorption spectroscopy been evolved in the field of feed industry? What are the principle, merits and demerits of this technique? 10.0
3. What are the implications of *in vitro* Menke's gas technique in ruminant research? How should you proceed to estimate degradability of organic matter (DOM) for dried German grass in Menke's gas technique? 10.0
4. Why dacron bag technique is neither an *In vivo* nor an *In vitro* technique? Discuss the implications and drawbacks of the technique? Under existing set up, *in vivo*, *in vitro* or *in sacco* - which technique will be more feasible for CVASU? 10.0
5. Despite availability of research animal and metabolism crates, is it a holistic approach to attempt for *in vitro* digestibility technique? What cautions would you adopt to simulate reality of *in vitro* techniques? 10.0

**MS in Animal and Poultry Nutrition**  
**Final Examination January to June Semester/2023**  
**Sub: Feed Processing and Evaluation**  
**Course code: FPE-601**  
**Marks: 40 Time: 2 hours**

(Answer any four questions from the following in which Q no 1 is compulsory. Figure in the right margin indicates full marks)

1. a. Indicate the importance of feed evaluation and briefly discuss about the procedure of physical evaluation of feed. 5.0  
b. Outline and discuss the steps of making pellet feed in feed mill. 5.0
2. a. Briefly discuss about the energy estimation procedure from a feed sample. 4.0  
b. List the handling equipment and machineries require for run a feed mill and indicate the functions and basis of selection of good pellet mill and screw Conveyors. 6.0
3. a. What do you mean by pellet durability? Discuss briefly how you will estimate pellet durability. 6.0  
b. Mention the factors that affect pellet quality and discuss briefly about two of such factors. 4.0
4. a. What do you mean by Grinding and conditioning? 2.0  
b. Indicate the name of different grain and roughage processing methods and Indicate physical and chemical changes in feed during processing, and their effect on nutrient utilization. 8.0
5. Write short notes on (Any Four) 2.5x4 = 10
  - a. Storage and procurement of raw material.
  - b. Mixer.
  - c. Adding of liquid in feed.
  - d. Coating of vitamin.
  - e. Bucket elevator.

**MS in Animal and Poultry Nutrition**  
**Final Examination January to June Semester/2023**  
**Sub: Therapeutic Nutrition**  
**Course code: TPN-601**  
**Marks: 40 Time: 2 hours**

(Answer any four questions from the following in which **Q no 1** is compulsory. Figure in the right margin indicates full marks)

1. a. What do you mean by therapeutic nutrition? List the indicators of a possible nutritional problem in a dairy herd. 5.0
- b. Indicate the supportive clinical tests, treatment and prevention of Milk fever, ketosis and grass tetany. 5.0
2. a. Indicate the possible problems associated due to overfeeding and under feeding of sheep/Goat and discuss how you will solve those problems. 4.0
- b. Write down the deficiency symptom and sources of Vit A, VitE in cattle and B<sub>12</sub> & B<sub>6</sub> in poultry. 6.0
3. a. What do you mean by malabsorption and malnutrition? Mention the Etiology and Pathophysiology, clinical findings, diagnosis, treatment and prevention of malabsorption. 6.0
- b. Mention the supportive treatment and prevention of off feed problem and Displaced Abomasum. 4.0
4. a. Discuss briefly about the paternal nutrition of goat and cattle. 5.0
- b. Write down the feeding system of sick dog and cat. 5.0
5. Write short notes on (Any two) 5.0 x2 = 10
  - a. Infertility.
  - b. Obesity of dog and cat.
  - c. Retained Placenta

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Semester Final Examination (January-June 2023)  
**Course Title: Feed Biotechnology (Theory)**  
Course code: FBT-601, Full marks: 40, Time: 2 hours

**Figures in the right margin indicate full marks. Answer any four (4) questions. There is no room to consider fragmented answers!**

1. Discuss in detail the dynamic fields of feed biotechnology and their applications for upgrading yield and nutritive values of unconventional feeds and forages available in Bangladesh. 10.0
2. Highlight the concepts of probiotics, prebiotics, toxin binders, mold inhibitors and pellet binders. Discuss the production, preservation and marketing strategy of probiotics, prebiotics, toxin binders, mold inhibitors and pellet binders? 10.0
3. Discuss the prospects and potentials of adopting GM foods in developing countries. What might be the possible consequences for long term regular intake of GM foods in animal and human body? 10.0
4. Discuss the manufacturing process for different type of protein concentrate, vitamin-mineral premix and water-soluble vitamins for commercial use of ruminant animal. 10.0
5. What is a molecular technique? Discuss the fundamental role of molecular techniques. What are the possible applications of molecular techniques in the field of feed biotechnology? 10.0