

**MS IN ANIMAL AND POULTRY NUTRITION**  
**SEMESTER FINAL EXAMINATION 2015**  
**JANUARY TO JUNE SEMESTER**  
**COURSE TITLE: NUTRITION STUDIES AND RESEARCH**  
**COURSE CODE: NSR - 601**  
**FULL MARKS: 40; TIME: 2 HOURS**

Answer any **five (05)** questions from the following

1. a) What is digestibility? How does apparent digestibility differ from true digestibility? 4  
b) Discuss the conventional method of digestibility determination. 4
2. a) Discuss feed intake. How can you measure the feed intake of a grazing animal? 4  
b) What is VFA? Discuss the fate of VFA in ruminant. 4
3. a) Discuss the partitioning of energy in ruminants. 4  
b) What are the modern changes occurred in the field of animal nutrition. 4
4. a) Discuss the measurement procedure of microbial protein in rumen liquor. 4  
b) What are the microbes found in the rumen? Discuss their role in fermentation of feed. 4
5. a) What are the indirect methods of digestibility trial? Discuss any one of them. 4  
b) What is inert protein? Write down its role in high yielding dairy cows. 4
6. a) Write short notes about your experiences gathered during your assigned work at the Animal Nutrition field lab. 4  
b) Calculate the DM digestibility of napier grass having the following information: 4  
Feed intake 12 kg (DM-35%), Refusal 2 kg (DM-38%), and Faeces outgo 6 kg (DM-32%) as fresh basis.

Department of Animal Science and Nutrition  
Chittagong Veterinary and Animal Sciences University  
MS in Animal and Poultry Nutrition  
Semester Final Examination (Jan-June 2015)  
**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. All questions must be answered in sequential order. Fragmented answers will not be taken into consideration.**

1. Discuss the principle, merits and dimensions of Near Infrared Reflectance Spectroscopy (NIRS). Is it really a contemporary breakthrough over traditional wet chemistry principle? What are the bottlenecks of NIRS compared to Weende system? 10.0
2. Despite NIRS and other conventional spectrophotometric techniques, why has atomic absorption spectroscopy (AAS) been evolved in the field of nutrition study? Discuss the principle, merits and further scope of exploring AAS in animal science? 10.0
3. Differentiate *in vivo*, *in vitro*, *in sacco* and *in situ* organic matter degradability. How would you attempt to estimate *in vitro* organic matter degradability (IVOMD) of distiller's brewer grain by Menke's gas technique? Discuss the risk factors for failure of gas production in the glass piston? 10.0
4. 'Nylon or Dacron bag technique'- what sort of technique is it, *in vivo*, *in vitro*, *in sacco* or *in situ*? Discuss the merits and demerits of *in sacco* technique in the field of ruminant research? 10.0
5. What is bomb calorimetry? Despite availability of research animal and metabolism crates, is it a holistic approach to attempt for *in vitro* degradability trial? What are the merits and demerits of adiabatic bomb calorimetry? 10.0
6. What is respiration calorimetry? What are the implications, merits and demerits of respiration calorimetry? Why NE is mostly ignored for feeding cattle in developing countries? 10.0

Department of Animal Science and Nutrition  
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Semester Final Examination (Jan-June 2015)  
**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. All questions must be answered in sequential order. Fragmented answers will not be taken into consideration.**

1. What is feed biotechnology? What are the dynamic fields of feed biotechnology? Briefly discuss the possibilities for exploring innovative applications of feed biotechnology in the field of animal nutrition. 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. Give a precise list of medicinal plants, indicate their active ingredients and mention their mode of action. Discuss the prospects and potentials of medicinal plants in feed biotechnology. 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

**MS in Animal and Poultry Nutrition**  
**January to June Semester Final Examination 2015**  
**Course Title: Feed Processing and Evaluation**  
**Course Code: FPE - 601**  
**Total Marks: 40. Time: 2 hours**

**Answer any four (4) from the following questions. Each question carries the equal value.**

1. a) What is preservation of feed? How can you preserve wet straw and banana as a ruminant feed? 5  
b) Discuss the effects of changes (physical and chemical) of raw materials on nutritive value of finished feeds. 5
2. a) How could you measure the nutritive value of feeds? Discuss. 5  
b) "NFE accomplished the cumulative errors of proximate components"- explain with specific reasons. 5
3. a) Briefly discuss about the coating of vitamins, minerals and other nutrients and their effects of animal nutrition. 5  
b) Is urea feeding beneficial to ruminants? Justify your statement. 5
4. a) Write short notes on batching, conditioning, pelleting, cooling and grinding of materials. 5  
b) How could you control dust in a feed mill as well as in a procurement centre? 5
5. a) What is feed? Discuss the importance of quality control of feed in a modern feed mill. 5  
b) What is extruder? How could you maintain it in a modern feed mill? 5

January to June Semester, 2015 Final Examination  
 Department of Animal Science & Nutrition  
**MS in Animal Nutrition**  
 Chittagong Veterinary and Animal Sciences University  
 Course Title: Applied 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) Define Simple Linear Regression with an example. 3  
 b) The marks of 5 students (out of 7.5) in Anatomy and Biostatistics are: 7

A	6	6.5	5.8	4	7
B	7.5	7	7.2	3.5	6.5

Compute Rank Correlation.

2. a) Define treatment and block with an example each. 4  
 b) 3 different kinds of hormone were applied to 4 blocks of chickens. Are the treatment and block statistically significant? 6

Block/Treatment	1	2	3
1	1.5	1.3	1.5
2	1.4	1.8	1.6
3	1.35	1.55	1.12
4	1.7	1.1	1.71

3. a) What is hypothesis? Derive the formula to test a population mean with a specific value in case of large samples. 5  
 b) Two groups of 20 cows were fed 2 different rations (C & D). 5

At the end of the experiment, the following sample means and variances were calculated.

Particulars	Ration C	Ration D
Mean	4.5	5.6
Variance	.20	.34
size	20	20

Is there any significant difference between the given 2 rations?

4. a) Define Chi square. Write some of its uses. 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 drug. The reaction to the treatment on patients are recorded as below: 6

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

5. a) Define LSD elaborately its advantages and disadvantages. 5  
 b) Define CRD with a practical example in your field. Compare between CRD and RBD. 5

**MS IN ANIMAL AND POULTRY NUTRITION**  
**SEMESTER FINAL EXAMINATION 2015**  
**JANUARY TO JUNE SEMESTER**  
**COURSE TITLE: THERAPEUTIC NUTRITION**  
**COURSE CODE: TPN - 601**  
**FULL MARKS: 40; TIME: 2 HOURS**

**Answer any five (05) questions from the following**

1. a) Define therapeutic diet. What types of diet you can formulate for a sick animal? 4  
b) List different types of therapeutic diets and their uses for animals. 4
2. a) What is digestibility? How does digestibility trial differ from metabolism trial? 4  
b) Discuss impaired metabolism with its possible causes and preventions. 4
3. a) What is parenteral nutrition? Write down the nutritional requirement of a heifer. 4  
b) What do you know about calf starter and milk replacer? 4
4. a) Define malnutrition. What are the consequences of protein deficiency in ruminant? 4  
b) Write short notes on Dog biscuit and Pregnancy toxemia. 4
5. a) Write short notes on Lactic Acidosis and Milk Fever. 4  
b) Formulate a therapeutic diet for a dog suffered from diarrhoea. 4
6. a) List the common metabolic disorders of animal with their preventive measures in cattle. 4  
b) What do you know about ketone bodies? Discuss the nutritional importance of ketosis. 4

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