

# Chittagong Veterinary and Animal Sciences University

## MS in Animal Breeding and Genetics

January-June semester final examination-2021

Course: **Breeding for disease resistance in farm animals**

Course code: BDR-601

Full marks: 40; Time: 2 hours

Date: 06/01/2022

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

1. (a) Contrast the term disease tolerance, resilience, and resistance. 3
- (b) Suppose you are carrying out a project entitled "Detection of genetic markers for parasite resistance in Red Chittagong cattle", which approach you can use to detect the candidate mutations and why. 5
- (c) What do mean by DLR? 2
  
2. (a) Develop a strategy for genetic selection for resistance to diseases in livestock of Bangladesh. 6
- (b) What are the opportunities and challenges may come across while developing a selection programme for disease resistance? 4
  
3. (a) Tabulate five important disorders for each species-cattle, goat, and chicken for which there is documentation evidence of genetic resistance or tolerance. 7
- (b) Write a short note on marker assisted selection (MAS). 3
  
4. (a) Differentiate forward and reverse genetic approach. 4
- (b) What is a haplotype? How do you apply genome-wide SNP data in a breeding programme for parasite resistance 6
  
5. (a) What is major histocompatibility complex (MHC)? Why MHC is important in disease resistance? 3
- (b) Write in details about the genomic organization of the MHC region. 7

**Chittagong Veterinary and Animal Sciences University**

M S in Animal Breeding and Genetics

January-June Semester Final Examination 2021

**Course title: Reproductive Nutrition**

Course Code: RPN-601

Total marks: 40

Time: 2 hour

Answer any **2 (two)** questions from the following. Values are indicated in the right margin in each question.

1. a) What do you mean by the term Reproductive Nutrition? Draw neat diagram of cow's reproductive system and mention the role of nutrition for its development. **8**
- b) Calculate nutritional requirement of a late pregnant cow having 300 kg live weight and daily weight gain 300g and the cow producing 5 liter milk daily. **8**
- c) Mention the factors for feed intake of a cow with its application for ration formulation. **4**
  
2. a) Describe the biological framework those determine the cows herd fertility. **7**
- b) Write how you will analyze the dairy herd fertility under cooperative dairying conditions of Bangladesh? **8**
- c) What is feeding standard? Distinguish between ARC and AFORC. **5**
  
3. a) What is the value of milk? Briefly write the causes of variation in the yield and composition of milk from cow. **6**
- b) Describe the pre-breeding and post breeding management of bull. **4**
- c) List the characteristics for a breeding bull. Narrate a ration for 4.5 years old bull having 450 kg live weight and dairy live weight gain is 350g and which are using semen collection twice per week and ejaculate volume is 8ml. **10**

Chattogram Veterinary and Animal Sciences University  
Dept. of Genetics and Animal Breeding  
M.S. in Animal Breeding and Genetics  
(January –June Semester)Final Examination- 2021  
Subject: Conservation Biology& Genetic Diversity  
Course Code: CGD-601  
Total Marks: 40; Time: 2 hours

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

1. a) Briefly describe about conservation biology and biodiversity. 5.0  
b) What are the major threats of biodiversity? 5.0
2. a) Discuss about the several types of habitat destruction. 5.0  
b) What are the causes of habitat destruction? 5.0
3. a) Write a short note about overexploitation. 5.0  
b) How you will reintroduction Indian Peafowl in the forest of Bangladesh. 5.0
4. a) Discuss about the term ex-situ conservations. 5.0  
b) How you will differentiate ex-situ conservations from in-situ conservations? 5.0
5. a) Give a management plan of Sundarban for conservation of Royal Bengal Tiger. 5.0  
b) How many protected areas are available in Bangladesh? Write down the role of that protected areas for conservation of wildlife. 5.0
6. a) Write a short note about problems of small population. 5.0  
b) Explain the terms extinct, critical and endangered. 5.0

**Chattogram Veterinary and Animal Sciences University**

**M. S. in Animal Breeding and Genetics**

**(January- June Semester) Final Examination-2021**

Course: Physiology of Reproduction

Course code: PHR-601; Full Marks- 40

Time- 2.00 hrs; Date- 30/12/2021

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

1. a) Why is it important to study the physiology of animal reproduction? 3.0  
b) Briefly discuss the relationship of animal reproduction with genetics and animal breeding. 7.0
2. a) Briefly discuss the development of male reproductive organs in cattle. 5.0  
b) Mention the hormones with their source and function that regulate bovine estrous cycle. 5.0
3. a) What do you mean by luteal and follicular phase? Mention normal ranges of reproductive behavior in different animal species. 5.0  
b) Write down the different stages of reproductive cycle in animals with their specific features. 5.0
4. a) Briefly describe the different types of placentation in animals. 5.0  
b) What are the factors that contribute to poor conception rate in animals? Write down the causes of anestrous in bovine animals? 5.0
5. a) Give a short explanation about the reproductive failure in livestock. 5.0  
b) What are the factors affecting neonatal mortality in ruminant animals? Discuss in brief. 5.0

**Chittagong Veterinary and Animal Sciences University**

M S in Animal Breeding and Genetics

January-June Semester Final Examination 2021

**Course title:** Animal Breeding Principles & Systems

Course Code: ABP-601 (T)

Total marks: 40

Time: 2 hour

Answer any 2 (two) questions from the following. Values are indicated in the right margin in each question.

1. a) Why selection index is the best method of selection? - Justify. How will you develop a multitrait selection index for cows, when the breeding objective is to increase the milk production? **12**
- b) What is industry structure? Describe the dairy industry structure for developing country- state your opinion whether it works well. **08**
2. a) What is a correlated trait? Give a breeding design for the improvement of the correlated traits in dairy development. **10**
- b) Define heterosis. Heterosis occur by the effect of non-additive gene action- explain it with an example. **10**
3. a) What is mixed model equation? Distinguish between breeding value and economic value of a trait. **04**
- b) What is marker assisted selection? How will you get the marker order using map distance when 5 marker data with phenotype of birth weight are recorded from calves? **08**
- c) Write in brief for the estimation of genetic gains for growth rate of a bull calves using the pathways of selection when the reproductive technique MOET is implemented. **08**

**Chittagong Veterinary and Animal Sciences University**

**MS in Animal Breeding and Genetics**

January-June Semester Final Examination-2021

Course: Genetics

Course code: GNT-601

Total marks: 40; Time: 2 hours

Date: 26/12/2021

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

1. (a) Articulate “gene as a transcribe code “with proper illustration. 3  
(b) Suppose you were carrying out a crossbreeding experiment on Petal color in snapdragons. In F2 generation, your expected phenotypic ratio was 9:3:3:1. However, you have seen a ratio of 15:1. Judge, how ratios of Mendelian inheritance modified in this case. 5  
(c) Compare complete and incomplete linkage. 2
2. (a) Briefly describe the chemical and molecular structure of a eukaryotic chromosome? 3  
(b) Define modifier genes. Relate effects of modifier environments on a phenotype with examples in animal. 5  
(c) Differentiate between euchromatin and heterochromatin. 2
3. (a) Summarize significances of crossing-over. How a genetic distance between two loci is calculated? 4  
(b) Categorize the types of gene maps. Illustrate the steps for constructing a physical map? 4  
(c) Contrast linked genes and syntenic genes. 2
4. (a) Explain population in genetic sense. Write in short about “population bottleneck”. 4  
(b) What is Hardy-Weinberg equilibrium? List the forces that disturb Hardy-Weinberg equilibrium with possible explanations. 4  
(c) Write a short note on “Penetrance”. 2
5. (a) Compare additive gene action and complementary gene action. 3  
(b) How do you contrast between a karyotype and an idiogram? 3  
(c) What do you mean by FISH. Briefly articulate “Chromosome painting”. 4

January to June Semester, 2021 Final Examination  
 Department of Dairy and Poultry Science  
**MS in Poultry 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) 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) CCP<sup>1</sup> and CCP<sup>2</sup>
- 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