Chittagong Veterinary and Animal Sciences University

Department of Genetics and Animal Breeding

MS in Animal Breeding and Genetics

(July-December semester) Final Examination- 2016

Subject: Poultry Breeding; Course Code: PBR-602

Full marks: 40; Time: 2 hours

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

1. a) List the species of poultry with their wild ancestor based on area of domestication and purpose of utilization. 5.0
   b) Describe about the mating system of poultry. 5.0

2. a) How you will produce high quality egg type chicken? 5.0
   b) Describe about several class of chicken. 5.0

3. a) What is combined selection? 5.0
   b) Write a short note on Osborne index. 5.0

4. a) Discuss how selection index help for desired gain in poultry. 5.0
   b)Give a brief discussion about the family selection for poultry. 5.0

5. a) Write a short note about reciprocal recurrent selection. 5.0
   b) What do you mean by general and specific combining abilities? Explain with example. 5.0

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(July-December semester) Final Examination- 2016

Subject: Wildlife Breeding & Management; Course Code: WBM-602

Full marks: 40; Time: 2 hours

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

1. a) How you will do census of wildlife? 5.0
   b) Write a short note about wildlife habitat. 5.0

2. a) What are roles of wildlife and zoo veterinarian for prevention and control of wildlife diseases? 5.0
   b) Write a short note about breeding biology of reptile. 5.0

3. a) What are the uses of Radio Telemetry? 3.0
   b) Discuss about the several types of trapping methods of wild animals. 7.0

4. a) What are the basic instructions for recording field observations for wild animals? 5.0
   b) Discuss about the breeding biology of bird. 5.0

5. a) Write a short note about preservation of wildlife. 5.0
   b) What is the future of Crocodiles farming in Bangladesh? Write down about the Crocodile farming. 5.0

Chittagong Veterinary and Animal Sciences University
MS in Animal Breeding and Genetics
July to December Semester Final Examination-2016
Course Title: Reproductive Biotechnology
Course code: RPB-602
Full marks-40, Time-02 hour

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

1. a) Differentiate between X and Y chromosome bearing spermatozoa. Write in brief about separation procedure of the X and Y bearing chromosome. 5
   b) Discuss about causes of sperm defects during sorting process. Briefly describe the measures to reduce the defects in spermatozoa during sorting. 5

2. What is OPU? Briefly describe about techniques, applications and advantages of OPU. 10

3. a) What do you mean by Reproductive Biotechnology? Discuss the role of Reproductive Biotechnology for genetic improvement of livestock. 4
   b) Write in details about the frozen semen preservation technique. Give a plan for establishing AI centre. 6

4. Short notes (any two): 10
   a) Embryo Culture
   b) Embryo Sexing
   c) Micromanipulation of gametes and embryos
   d) Chimera

5. a) Write down the importance of embryo transfer and multiple ovulation technique. 5
   b) Write in brief about the procedure of MOET in cattle genetic improvement 5

6. a) What do you mean by In-vitro fertilization? Describe the stages involved in In-vitro fertilization. 5
   b) What are the prerequisites and complications of In-vitro fertilization? Write down about factors influencing In-vitro fertilization. 5

Chittagong Veterinary and Animal Sciences University
MS in Animal Breeding and Genetics
July-December Semester Final Examination-2016
Course: Problems on Quantitative Genetics and Animal Breeding
Course code: PQB-602
Total marks: 40; Time: 2 hours
Date: 05/12/2016

Figures in the right margin indicate the full marks. Answer **any four** of the following questions, where question **no. 3 is compulsory**

1. a) Mention the heritability and repeatability values for different reproduction traits in cattle. **3**

b) Data on the following table are litter size in 7 parities from a local pig flock in Rangamati district. **7**

Number of parity	Sow 1	Sow 2	Sow 3
1	4	6	6
2	4	10	4
3	5	8	7
4	3	7	5
5	4	9	3
6	2	8	
7	3		

Calculate the repeatability value for liter size with its standard error.

2. a) Define generation interval (GI). Why GI is important in animal breeding? What are the factors you should taken into account when calculating the generation interval? **3**

b) In a flock of 1000 ewes, 95 percent survive from year to year. They are culled after their fifth lambing. Rams are used at the rate of 2 percent and culled after three years. Effective reproduction rates which relate to the number reaching selection age at 18 months, increase from 60 percent for maiden ewes to 70 percent for ewes having second births and 80 percent for older ewes. The survival rate for rams is 90 percent. **7**

Based on these assumptions calculate-

i) Number of maiden ewes
ii) Female generation interval
iii) Male generation interval
iv) Flock generation interval

3. a) State Hardy-Weinberg equation with its significance in animal breeding. **2**

b) In a flock of wild 200 ducks, 48 individuals express the recessive phenotypes, what percentage of the population would you predict would be heterozygotes? **6**

Suppose the original population 200 ducks was affected by Duck cholera and 100 ducks were died, leaving 18 homozygous recessive out of the 100 survivors. If we assume all individuals were equally likely to be died, how did the duck cholera affect the predicted frequencies of the alleles in the population?

c) In a population 280 bull, due to natural selection again recessive lethal allele you are missing the recessive homozygotes but you got 57 heterozygotes. What percentage of the population would you predict would be recessive homozygotes? **2**

Chittagong Veterinary and Animal Sciences University
MS in Animal Breeding and Genetics
July-December Semester Final Examination-2016
Course: Molecular Genetics
Course code: MGN-602
Total marks: 40; Time: 2 hours
Date: 11/12/2016

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

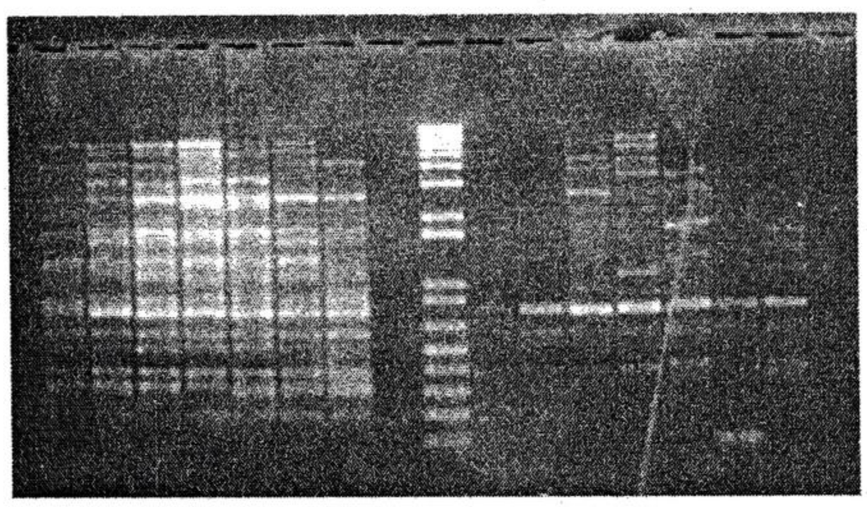
1. (a) Distinguish between forward and reverse genetics. **2**

(b) When a cell in S phase of the cell cycle, it can replicate its DNA, however a G_2 nucleus does not begin replication of freshly synthesized DNA again until mitosis is completed. In these circumstances, how does a cell control its DNA replication? . **5**

(c) DNA exists in some possible confirmations. Write in short about these confirmations. **3**

2. (a) Explain, how does a PCR product is produced from a genomic DNA sample? **3**

(b) Suppose, you are doing PCR to generate amplicon of the *LHX1* gene using long range dNTP pack and master mix. You are getting the following image when you run PCR products in agarose gel, in this case how do you correct your PCR reactions to get the single band? **5**

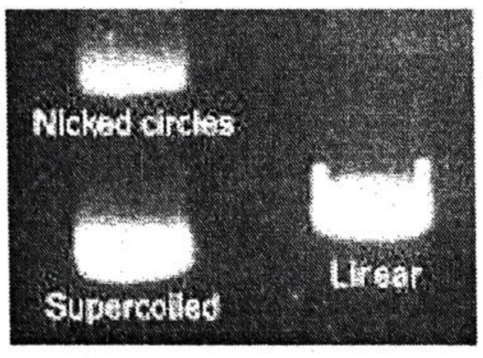


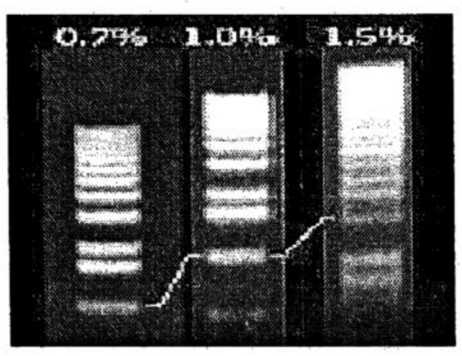
(c) What do you mean by complementary DNA? **2**

3. (a) Suppose you received a tissue sample from a crime scene. How do you extract DNA from that sample to get the DNA fingerprints? **3**

(b) What are methods that you can use for doing DNA fingerprinting from the above mentioned sample. **2**

(b) Explain the migration of DNA fragments in agarose based on following images from a PCR experiment. **5**





4. (a) What do you mean by Tm value? Calculate the Tm value for this sequence ATGCACTGAGAT? **3**

(b) As a molecular geneticist, you are requested to estimate phylogenetic relationship among the circulating FMD viruses in Bangladesh. How do you perform phylogenetic analysis for this assignment? **5**

(c) What are the criteria you should judge while designing a good primer? **2**

5. (a) Suppose, you got a purified PCR product from the bacteriology laboratory of CVASU with a request to sequence the DNA. How do you perform the DNA sequencing in that case? **5**

(b) Write a short note on Southern blotting **5**