

**Chittagong Veterinary and Animal Sciences University**  
**MS in Animal Breeding and Genetics**  
**July-December Semester Final Examination-2018**  
**Course title: Poultry Breeding**  
**Course Code: PBR 602**  
**Full marks-40.0, Time-2hr**

Answer any 2 (two) question from the followings. Figure in the right margin indicate full marks.

- 1
  - a) State the term poultry breeding? Describe different theory of modern chicken development? **3.0**
  - b) What are mating usually practiced in poultry? Which one is suitable for development of crossbred in Bangladesh? **4.0**
  - c) What are the assessment criteria of selecting male and female for the development of meat type line? **5.0**
  - d) CVASU has a vision to establish a nucleus herd for egg production. What are the points should be considered? Explain in details? **8.0**
  
- 2
  - a) Explain reciprocal recurrent selection, selection pressure and idealized population? **3.0**
  - b) Explain the methods of enhancing homozygosity in a commercial poultry flock? **5.0**
  - c) State methods of selection on phenotypic values? Egg production of 65 weeks pullets is given below. These are offsprings of 4 sire mated with two dams having 4 progeny from a single hatch. Calculate Osborne index of each birds and rank them ( $b_1 = 1.455$  and  $b_2 = 1.745$ ). **12.0**

Sire	Dam	Performance of egg production			
		1	2	3	4
Sire 1	1	236	217	242	235
	2	226	219	242	242
Sire 2	1	238	239	232	226
	2	220	217	217	235
Sire 3	1	218	240	229	226
	2	237	232	234	245
Sire 4	1	229	227	236	219
	2	226	228	215	234

- 3
  - a) Write down detail about Basis of selection in poultry? **4.0**
  - b) How general combining ability differ from specific combining ability? **4.0**
  - c) How will you develop a broiler strain using breeding tools? **6.0**
  - d) Write down short notes on **6.0**
    - i) Persistency of production
    - ii) Line crossing
    - iii) Feed conversion efficiency



**Chittagong Veterinary and Animal Sciences University**

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

**(July- December semester) Final Examination-2018**

Course: Reproductive Biotechnology

Course code: RPB- 602

Full Marks- 40; Time- 2.00 hrs

Answer any **four (4)** questions. Figures in the right margin indicate the full marks.

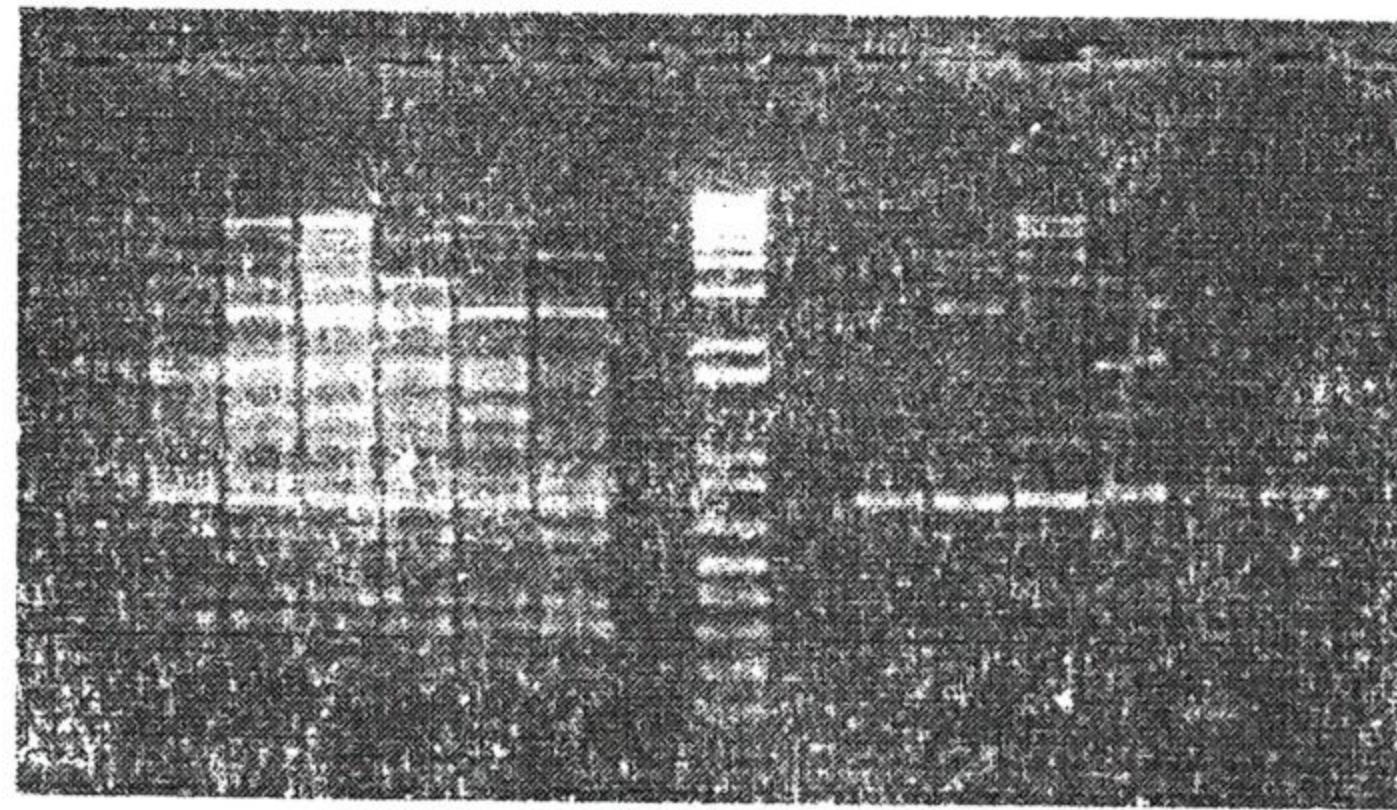
1. a. What do you mean biotechnology and reproductive biotechnology? Discuss the role of reproductive biotechnologies for genetic improvement of livestock. 6
- b. What are the constraints on applying the biotechnology in animal improvement? 4
2. a. Briefly discuss the pre-requisites for successful AI. 5
- b. What are factors affecting conception rate in artificial insemination? Discuss in details. 5
3. a. How will you synchronize estrus of donor and recipient animals for ET technology? Write down the application and limitation of ET technology. 5
- b. What do you mean by embryo cloning and embryo slicing? Write their application in modern animal production. 5
4. a. Illustrate the factors that alter success rates of embryo transfer. 5
- b. What are the different methods available for embryo sexing in animals? Discuss in brief. 5
5. a. How will you maintain cow embryos in-vitro? 5
- b. Write down the application of in-vitro embryo technologies in domestic animal. What are the factors affecting in-vitro fertilization? 5



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

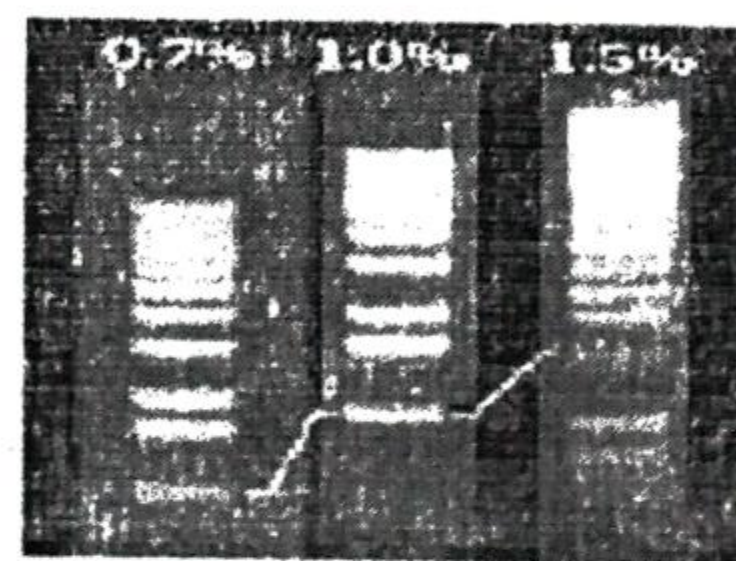
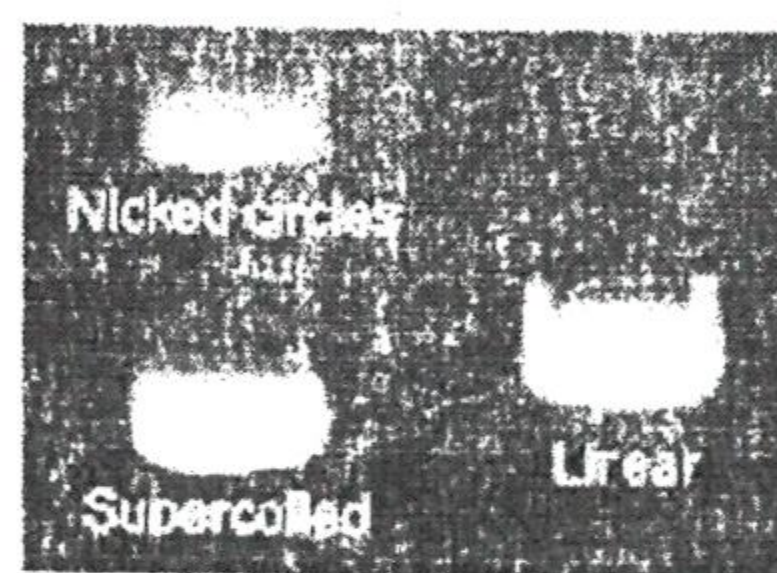
1. (a) Distinguish between prokaryotic and eukaryotic transcription. 2
- (b) When a cell in S phase of the cell cycle, it can replicate its DNA, however a G<sub>2</sub> nucleus does not begin replication of freshly synthesized DNA again until mitosis is completed. In these circumstances, how does a cell control its DNA replication? 5
- (c) Tabulate different classes of RNA with their functions. 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 *TCEB3* 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) Differentiate between prokaryotic and eukaryotic gene.? 2

3. (a) What is DNA fingerprinting? Compose the practical applications of DNA fingerprinting. 5
- (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 T<sub>m</sub> value? Calculate the T<sub>m</sub> value for this sequence ATGCACTGAGATGC? 3
  - (b) As a molecular geneticist, you are requested to estimate phylogenetic relationship among the wild bird species 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) Create a table by differentiating southern-blot, northern blot and western blot in relation to principles, methods and applications. 5
  - (b) Write a short note on DNA sequencing. 5



**Course title: Problems on Quantitative Genetics & Animal Breeding**

Course Code: PQB-601

Total marks: 40

Time: 2 hour

(Answer any 2 (two) from the following question. Values are shown in the write margin in each question)

1. a) What breeding value? Which points you will consider for estimating the breeding values by using mixed model equation? List out the software's those are used for genetic evaluation. 4.0
- b) Assume the following data for lamb birth weaning weight (kg) of different breeds of sheep.

Breed			Location
Romney	Indigenous BD	Cotswold	
10.00	9.00	11.55	Nilphamary
12.50	10.00	12.90	Chittagong
11.25	11.42	10.5	Comilla
11.50	9.75	13.25	Dhaka
10.90	-	11.50	Cox's Bazar

- (i) Write a multiple regression linear model to describe the variable birth with based on intercept, breeds, location and residual 2.0
- (ii) Represent the data in matrix form. 2.0
- (i) Obtain the estimates of the parameters (b,s) of the model using the ordinary least square Method (OLSM). 10.0
- (ii) Estimate the standard error of estimates of the parameters. 2.0
2. a) Define matrix with example. Distinguish between diagonal and off-diagonal elements, and relationship matrix and generalized matrix. 6.0
- b) Proof that the profitability of rotational crossbreeding using two breed (Holstein and Jersey) cross is higher than the purebreeding. 8.0
- c) The following numbers of cattle population were recorded in a sample of Bangladesh cattle 6.0

<b>R</b>	<b>Rr</b>	<b>r</b>
447	760	326

- (i) What is the genotype frequencies observed in this sample?
- (ii) What are the gene frequencies?
- (i) With the gene frequency observed, what are the gene frequencies expected from the Hardy Weinberg law?
- 3.a) In an attempt to breed chickens that will provide a greater quantity of meat and quality of taste 25 years from now, the JAFRO company decided to develop their own bird selection programme. Their economists forecast that the net present value of an extra unit of quality will be \$0.70 while the value of an extra kilogram of meat will be worth \$1.6. Given the difficulty of measuring both of these two traits directly, JAFRO geneticists decided to use fat as an indirect predictor of taste and live-weight as an indirect predictor of meat quantity, both measured at 1 year of age.

	Std. dev.	Fat	Meat	Taste	Live-weight
Fat (kg)	0.33	<b>0.35</b>	-0.50	0.30	-0.30
Meat (kg)	1.20	-0.30	<b>0.46</b>	0	0.22
Taste (unit)	0.25	0.65	-0.10	<b>0.10</b>	0.10
Live-weight (kg)	0.76	-0.40	0.50	-0.10	<b>0.30</b>

Std.dev is the phenotypic standard deviation. Heritabilities are on the diagonal, genetic correlations below the diagonal and phenotypic correlations above the diagonal.

Assume that selection of new parents is based on a single record of their own performance. Given the above information:

- a) State the selection objective and selection index in terms of linear equation. 1.0
- b) Derive the index weighting factors using Best Linear equation. 10.0
- c) One particular bird has a ~~pliability~~ <sup>residual</sup> deviation of +4 and a live-weight deviation of -2.0 what is the aggregate genetic merit. 1.0
- b) Estimate the genetic gains for milk yield using the four path way of selection from 100 cow dairy herd. Narrate the scenarios if the active cow population and number of bull will double than the base population. 8.0



Chittagong Veterinary and Animal Sciences University

Dept. of Genetics and Animal Breeding

M.S. in Animal Breeding and Genetics

July-December semester final examination - 2018

Subject: **Wildlife Breeding and Management**

Course Code: **WBM-602**

Total Marks: 40; Time: 2 hours

Date: .12.2018

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

1. a) Briefly describe about the importance of wildlife for human being. 5.0  
b) Write a short note about wildlife management principles. 5.0
2. a) Discuss about the role of Royal Bengal Tiger for conservation of Sundarban ecosystem. 5.0  
b) How many birds extinct from wild area of Bangladesh? How you will do reintroduction of any one of those birds? 5.0
3. a) Briefly describe about the process of wildlife management. 5.0  
b) How you will protect wildlife by maintaining the livelihood programs 5.0
4. a) What do you mean by ecotourism? How you will management the wildlife of Bangabandu Safari park for ecotourism. 5.0  
b) Write a short note about economic aspect of crocodile farm in Bangladesh. 5.0
5. a) Discuss about the captive breeding process for wildlife conservation. 5.0  
b) How you will do economic frog farming? 5.0